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A revision of the genus *Leptobium* Casey (Coleoptera: Staphylinidae: Paederinae)

Volker Assing

Abstract

The species of *Leptobium* Casey, 1905 are revised. The genus has a southern Palaearctic distribution, with a doubtful record of a widespread species also from the northeast of the Ethiopian region. The Mediterranean and Middle Asia are the regions with the highest species diversity. 61 valid species group names are recognised. All the species, exclusive of the previously revised representatives of the Atlantic Islands, are described and illustrated, eleven of them for the first time: *L. exiguum* **n. sp.** (Russian Far East), *L. chinense* **n. sp.** (China: Hebei), *L. thryptisense* **n. sp.** (Greece: Crete), *L. korgei* **n. sp.** (Syria), *L. schuelkei* **n. sp.** (Turkey: Antakya), *L. ponticum* **n. sp.** (Turkey: Sinop), *L. bicarinatum* **n. sp.** (southern Turkey, Syria), *L. carinatum* **n. sp.** (southwestern Turkey), *L. mutabile* **n. sp.** (Turkey: Antalya), *L. geminum* **n. sp.** (Turkey: Gaziantep), and *L. yemenicum* **n. sp.** (Yemen). In all, 60 new synonymies are established: *Leptobium artum* (Karsch, 1881) = *L. cribricolle* (Fauvel, 1869), **n. syn.**, = *L. artum oleae* (Koch, 1937c), **n. syn.**, = *L. artum algiricum* Jarrige, 1952, **n. syn.**, = *L. tingitanum* Coiffait, 1969, **n. syn.**; *L. brevicolle* (Koch, 1937) = *L. nigrifrons* Jarrige, 1952, **n. syn.**, = *L. borougense* Coiffait, 1969, **n. syn.**, = *L. antoinei* Coiffait, 1969, **n. syn.**, = *L. punctigerum dexter* Coiffait, 1969, **n. syn.**, = *L. testense* Coiffait, 1973, **n. syn.**, = *L. ifnense* Coiffait, 1973, **n. syn.**, = *L. mateui* Coiffait, 1973, **n. syn.**, = *L. otini* Coiffait, 1981, **n. syn.**; *L. creticum* Coiffait, 1973 = *L. minos* Bordoni, 1984, **n. syn.**; *L. densiventre* (Fauvel, 1875) = *L. siculum* (Gridelli, 1926), **n. syn.**, = *L. boiteli* (Normand, 1938), **n. syn.**, = *L. densiventre* Fagel, 1957, **n. syn.**, = *L. lucidum* Fagel, 1957, **n. syn.**, = *L. kabylianum* Fagel, 1957, **n. syn.**, = *L. sparsiceps* Coiffait, 1969, **n. syn.**, = *L. vaulogeri* Coiffait, 1969, **n. syn.**, = *L. fernanense* Coiffait, 1969, **n. syn.**, = *L. tuniseum* Coiffait, 1969, **n. syn.**, = *L. diabolicum* Coiffait, 1969, **n. syn.**, = *L. vulcanum* Coiffait, 1969, **n. syn.**, = *L. rambouseki* Bordoni, 1984, **n. syn.**; *L. dimidiatum* (Gridelli, 1926) = *L. reitteri* Coiffait, 1969, **n. syn.**; *L. doderoi* (Gridelli, 1926) = *L. ferreri* Coiffait, 1982, **n. syn.**; *L. gracile* (Gravenhorst, 1802) = *L. haemorrhoum* (Erichson, 1840), **n. syn.**, = *L. biguttulum* v. *anale* (Reitter, 1902), **n. syn.**, = *L. winkleri* (Koch, 1937), **n. syn.**, = *L. haemorrhoum cedri* (Koch, 1937), **n. syn.**, = *L. berberum* (Koch, 1937), **n. syn.**, = *L. duplicatum* Fagel, 1858, **n. syn.**, = *L. piochardi* Coiffait, 1969, **n. syn.**, = *L. obenbergeri* Bordoni, 1984, **n. syn.**; *L. gridellii* (Koch, 1941) = *L. jarrigei* (Koch, 1941), **n. syn.**, = *L. melillense* Coiffait 1969, **n. syn.**; *L. illyricum* (Erichson, 1840) = *L. illyricum moreum* Coiffait, 1969, **n. syn.**, = *L. ionicum* Bordoni, 1984, **n. syn.**; *L. korbi* (Eppelsheim, 1891) = *L. tronqueti* Lecoq, 1986, **n. syn.**; *L. nigricolle continentale* Jarrige, 1952 = *L. ovaliceps* Coiffait, 1969, **n. syn.**; *L. obesum* (Fauvel, 1875) = *L. cisjordanicum* Coiffait, 1969, **n. syn.**, = *L. bruleriei* Coiffait, 1969, **n. syn.**; *L. pullum* (Solsky, 1871) = *L. arisi* (Reitter, 1902), **n. syn.**; *L. punctigerum* (Fauvel, 1886) = *L. kocheri* Jarrige, 1952, **n. syn.**, = *L. punctigerum medium* Coiffait, 1969, **n. syn.**, = *L. tazekense* Coiffait, 1969, **n. syn.**, = *L. rifense* Coiffait, 1969, **n. syn.**, = *L. peyerimhoffi* Coiffait, 1969, **n. syn.**; *L. subglaciale* (Koch, 1937) = *L. subglaciale demnatense* Coiffait, 1969, **n. syn.**, = *L. mineti* Coif-

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fait, 1980, **n. syn.**, = *L. moraguesi* Coiffait, 1984, **n. syn.**; *L. syriacum* (Saulcy, 1864) = *L. fageli* Jarrige, 1952, **n. syn.**, = *L. gridellianum* Jarrige, 1952, **n. syn.**, = *L. hermonense* (Coiffait, 1954), **n. syn.**, = *L. anatolicum* Coiffait, 1972, **n. syn.**, = *L. waldeni* Bordoni, 1990, **n. syn.**; *L. unciferum* Coiffait, 1969 = *L. macrocephalum* Coiffait, 1969, **n. syn.**; *L. venustum* (Baudi, 1848) = *L. jordanicum* Coiffait, 1981, **n. syn.**; *Philonthus dimidiatipennis* Erichson, 1840 = *Leptobium minusculum* Coiffait, 1981, **n. syn.** *Leptobium ruficolle* (Wollaston), previously treated as a distinct species, is regarded as a subspecies of *L. nigricolle* (Wollaston, 1862). Lectotypes are designated for the following names: *Lathrobium gracile* Gravenhorst, 1802, *L. artum* Karsch, 1881, *Dolicaon haemorrhous* Erichson, 1840, *D. biguttulus* v. *analis* Reitter, 1902, *D. winkleri* Koch, 1937, *D. haemorrhous cedri* Koch, 1937, *D. berberus* Koch, 1937, *D. rubripennis* Reitter, 1891, *D. illyricus* Erichson, 1840, *D. densiventris* Fauvel, 1875, *D. siculus* Gridelli, 1926, *D. pominii* Gridelli, 1949, *D. cribricollis* Fauvel, 1869, *D. artus oleae* Koch, 1937, *D. gridellii* Koch, 1941, *D. subglacialis* Koch, 1937, *D. obesus* Fauvel, 1875, *D. semirufus* Fauvel, 1875, *D. korbi* Eppelsheim, 1891, *D. punctiger* var. *brevicollis* Koch, 1937, *D. punctiger* Fauvel, 1886, *D. hauseri* Bernhauer, 1915, *D. pullus* Solsky, 1871, *D. arisi* Reitter, 1902, *Leptobium kocheri* Jarrige, 1952. The available bionomic data are compiled and the distributions of 42 species are mapped. For the more common species, the seasonal distribution of records and intraspecific variation are illustrated. A synonymic catalogue and a key to the species of *Leptobium* are provided.

Keywords: Coleoptera, Staphylinidae, Paederinae, Dolicaonina, *Leptobium*, taxonomy, new synonyms, new species, lectotype designations, catalogue, key to species, intraspecific variation, colour polymorphism, sexual size dimorphism, bionomics, distribution, seasonal distribution.

Zusammenfassung

Die Arten der Gattung *Leptobium* Casey, 1905 werden revidiert. Die Gattung ist über die südliche Paläarktis verbreitet; für eine weit verbreitete Art liegt auch ein zweifelhafter Nachweis aus der nordöstlichen Äthiopis vor. Der Mittelmeerraum und Mittelasien sind die Gebiete mit der höchsten Artendiversität. Nach Revision umfasst die Gattung 61 Arten und Unterarten. Mit Ausnahme der nur von den Atlantischen Inseln bekannten Vertreter, die bereits früher revidiert wurden, werden alle beschrieben und abgebildet. Elf Arten werden erstmals beschrieben: *L. exiguum* **n. sp.** (Ferner Osten Russlands), *L. chinense* **n. sp.** (China: Hebei), *L. thryptisense* **n. sp.** (Griechenland: Kreta), *L. korgei* **n. sp.** (Syrien), *L. schuelkei* **n. sp.** (Türkei: Antakya), *L. ponticum* **n. sp.** (Türkei: Sinop), *L. bicarinatum* **n. sp.** (Südtürkei, Syrien), *L. carinatum* **n. sp.** (Südwesttürkei), *L. mutabile* **n. sp.** (Türkei: Antalya), *L. geminum* **n. sp.** (Türkei: Gaziantep) und *L. yemenicum* **n. sp.** (Jemen). Insgesamt werden 60 Namen synonymisiert: *Leptobium artum* (Karsch, 1881) = *L. cribricolle* (Fauvel, 1869), **n. syn.**, = *L. artum oleae* (Koch, 1937c), **n. syn.**, = *L. artum algiricum* Jarrige, 1952, **n. syn.**, = *L. tingitanum* Coiffait, 1969, **n. syn.**; *L. brevicolle* (Koch, 1937) = *L. nigrifrons* Jarrige, 1952, **n. syn.**, = *L. borougense* Coiffait, 1969, **n. syn.**, = *L. antoinei* Coiffait, 1969, **n. syn.**, = *L. punctigerum dexter* Coiffait, 1969, **n. syn.**, = *L. testense* Coiffait, 1973, **n. syn.**, = *L. ifnense* Coiffait, 1973, **n. syn.**, = *L. mateui* Coiffait, 1973, **n. syn.**, = *L. otini* Coiffait, 1981, **n. syn.**; *L. creticum* Coiffait, 1973 = *L. minos* Bordoni, 1984, **n. syn.**; *L. densiventre* (Fauvel, 1875) = *L. siculum* (Gridelli, 1926), **n. syn.**, = *L. boiteli* (Normand, 1938), **n. syn.**, = *L. densiventre* Fagel, 1957, **n. syn.**, = *L. lucidum* Fagel, 1957, **n. syn.**, = *L. kabylianum* Fagel, 1957, **n. syn.**, = *L. sparsiceps* Coiffait, 1969, **n. syn.**, = *L. vaulogeri* Coiffait, 1969, **n. syn.**, = *L. fernanense* Coiffait, 1969, **n. syn.**, = *L. tuniseum* Coiffait, 1969, **n. syn.**, = *L. diabolicum* Coiffait, 1969, **n. syn.**, = *L. vulcanum* Coiffait, 1969, **n. syn.**, = *L. rambouseki* Bordoni, 1984, **n. syn.**; *L. dimidiatum* (Gridelli, 1926) = *L. reitteri* Coiffait, 1969, **n. syn.**; *L. doderoi* (Gridelli, 1926) = *L. ferreri* Coiffait, 1982, **n. syn.**; *L. gracile* (Gravenhorst, 1802) = *L. haemorrhoum* (Erichson, 1840), **n. syn.**, = *L. biguttulum* v. *anale* (Reitter, 1902), **n. syn.**, = *L. winkleri* (Koch, 1937), **n. syn.**, = *L. haemorrhoum cedri* (Koch, 1937), **n. syn.**, = *L. berberum* (Koch, 1937), **n. syn.**, = *L. duplicatum* Fagel, 1858, **n. syn.**, = *L. piochardi* Coiffait, 1969, **n. syn.**, = *L. obenbergeri* Bordoni, 1984, **n. syn.**; *L. gridellii* (Koch, 1941) = *L. jarrigei* (Koch, 1941), **n. syn.**, = *L. melillense* Coiffait 1969, **n. syn.**; *L. illyricum* (Erichson, 1840) = *L. illyricum moreum* Coiffait, 1969, **n. syn.**, = *L. ionicum* Bordoni, 1984, **n. syn.**; *L. korbi* (Eppelsheim, 1891) = *L. tronqueti* Lecoq, 1986, **n. syn.**; *L. nigricolle continentale* Jarrige, 1952 = *L. ovaliceps* Coiffait, 1969, **n. syn.**; *L. obesum* (Fauvel, 1875) = *L. cisjordanicum* Coiffait, 1969, **n. syn.**, = *L. bruleriei* Coiffait, 1969, **n. syn.**; *L. pullum* (Solsky, 1871) = *L. arisi* (Reitter, 1902), **n. syn.**; *L. punctigerum* (Fauvel, 1886) = *L. kocheri* Jarrige,

1952, **n. syn.**, = *L. punctigerum medium* Coiffait, 1969, **n. syn.**, = *L. tazekense* Coiffait, 1969, **n. syn.**, = *L. rifense* Coiffait, 1969, **n. syn.**, = *L. peyerimhoffi* Coiffait, 1969, **n. syn.**; *L. subglaciale* (Koch, 1937) = *L. subglaciale demnatense* Coiffait, 1969, **n. syn.**, = *L. mineti* Coiffait, 1980, **n. syn.**, = *L. moraguesi* Coiffait, 1984, **n. syn.**; *L. syriacum* (Saulcy, 1864) = *L. fageli* Jarrige, 1952, **n. syn.**, = *L. gridellianum* Jarrige, 1952, **n. syn.**, = *L. hermonense* (Coiffait, 1954), **n. syn.**, = *L. anatolicum* Coiffait, 1972, **n. syn.**, = *L. waldeni* Bordoni, 1990, **n. syn.**; *L. unciferum* Coiffait, 1969 = *L. macrocephalum* Coiffait, 1969, **n. syn.**; *L. venustum* (Baudi, 1848) = *L. jordanicum* Coiffait, 1981, **n. syn.**; *Philonthus dimidiatipennis* Erichson, 1840 = *Leptobium minusculum* Coiffait, 1981, **n. syn.** *Leptobium ruficolle* (Wollaston), bisher eigenständige Art, wird als Unterart von *L. nigricolle* (Wollaston, 1862) betrachtet. Für die folgenden Namen werden Lectotypen designiert: *Lathrobium gracile* Gravenhorst, 1802, *L. artum* Karsch, 1881, *Dolicaon haemorrhous* Erichson, 1840, *D. biguttulus* v. *analis* Reitter, 1902, *D. winkleri* Koch, 1937, *D. haemorrhous cedri* Koch, 1937, *D. berberus* Koch, 1937, *D. rubripennis* Reitter, 1891, *D. illyricus* Erichson, 1840, *D. densiventris* Fauvel, 1875, *D. siculus* Gridelli, 1926, *D. pominii* Gridelli, 1949, *D. cribricollis* Fauvel, 1869, *D. artus oleae* Koch, 1937, *D. gridellii* Koch, 1941, *D. subglacialis* Koch, 1937, *D. obesus* Fauvel, 1875, *D. semirufus* Fauvel, 1875, *D. korbi* Eppelsheim, 1891, *D. punctiger* var. *brevicollis* Koch, 1937, *D. punctiger* Fauvel, 1886, *D. haueseri* Bernhauer, 1915, *D. pullus* Solsky, 1871, *D. arisi* Reitter, 1902, *Leptobium kocheri* Jarrige, 1952. Für 42 Arten werden Verbreitungskarten erstellt. Die verfügbaren Daten zur Biologie der Arten werden zusammengestellt. Für die weniger seltenen Arten werden die saisonale Verteilung der Nachweise und die intraspezifische Variabilität abgebildet. Ein Katalog der Arten einschließlich aller Synonyme und eine Bestimmungstabelle werden erstellt.

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1 Introduction

Casey (1905) described *Leptobium* to accommodate a single species from the Old World, *Leptobium biguttulum* (Lacordaire) [today a synonym of *Leptobium gracile* (Gravenhorst)], and distinguished it from *Dolicaon* Laporte, 1835 and *Scotonomus* Fauvel, 1873, all of which he attributed to the subtribe Dolicaonina. A few years later, however, *Leptobium* was synonymised with *Dolicaon* (Bernhauer & Schubert 1912). Authors continued to describe new species in *Dolicaon* until Jarrige (1952) distinguished *Leptobium* from *Dolicaon* and *Pinobius* MacLeay, 1873, based on the morphology of the labrum, the ventral aspect of the head (gular sutures), and especially of the aedeagus. In principle, this generic concept was later confirmed in a comprehensive phylogenetic and systematic study of the subtribe Dolicaonina (Herman 1981) and has prevailed up to today. For more details regarding the taxonomic history of the Dolicaonina and for a discussion of characters separating the different lineages within the subtribe see Herman (1981).

The previously known distribution of *Leptobium* was confined to the Western

Palaearctic region and Middle Asia (COIFFAIT 1969, 1982), with one species described from the northeast of the Ethiopian region ("Abyssinie") (FAGEL 1958).

Up to the beginning of the 20th century, the genus included only a moderate number of species. BERNHAUER & SCHUBERT (1912) listed a mere 18 valid species (as *Dolicaon*) that are today attributed to *Leptobium*; the remainder is now in *Dolicaon*, *Pinobius*, etc. In the following decades, however, the species number increased drastically, mainly through the work of COIFFAIT (1969, 1982, and numerous further articles), who described 49 taxa alone. Additional species were described at that time especially by JARRIGE (1952) (8 names), KOCH (1937a–c, 1941) (8 names), BORDONI (1984, 1990) (8 names), and GRIDELLI (1924, 1926, 1949) (6 names). As a result, some 70 years after the catalogue by BERNHAUER & SCHUBERT (1912), *Leptobium* included almost 100 species and subspecies (COIFFAIT 1982). Since this last synopsis of the genus, only few species have been described and some have been synonymised; the total figure of (sub-)species recognised before the revision was 106.

The present study was initiated and stimulated mainly by the often futile attempts at identifying *Leptobium* material from the Mediterranean, an experience shared with many colleagues, who confirmed the suspicion that the genus was probably in taxonomic confusion. Preliminary studies and the subsequent revision of the Canarian representatives of the genus (ASSING 1999a) soon revealed that – in view of the great number of names, little character divergence, and considerable intraspecific variation – it would be necessary to revise the genus as a whole and to study all the material available. Also, in order to clarify the systematic status of the species, zoogeographic considerations had to be given particular attention. Since the vast majority of *Leptobium* species are brachypterous, species descriptions had evidently often been based on the hypothesis that they were more or less endemic. On the other hand, most species have been recorded from lower to intermediate elevations, so that restricted distributions seemed somewhat unlikely.

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2 Material, methods, and abbreviations

Altogether more than 5000 specimens of *Leptobium* were examined, among them the available types. The material is deposited in the following public institutions and private collections:

cAdo	private collection A. ADORNO, Catania
cAng	private collection F. ANGELINI, Francavilla Fontana
cAss	private collection V. ASSING, Hannover
cBoh	private collection J. BOHÁČ, České Budějovice
cBor	private collection A. BORDONI, Firenze
cEss	private collection J. ESSER, Berlin
cFel	private collection B. FELDMANN, Münster
cGol	private collection V. GOLLKOWSKI, Oelsnitz

cHla	private collection P. Hlaváč, Košice
cKal	private collection M. Kalashian, Yerevan
cKap	private collection A. Kapp, Rankweil
cKor	private collection H. Korge, Berlin
cKra	private collection P. Krásenský, Chomutov
cPüt	private collection A. Pütz, Eisenhüttenstadt
cRos	private collection A. Rose, Oldenburg
cRou	private collection G. de Rougemont, Londinières
cSch	private collection M. Schülke, Berlin
cTro	private collection M. Tronquet, Molitg-les-Bains
cWun	private collection P. Wunderle, Mönchengladbach
cZan	private collection A. Zanetti, Verona
DEI	Deutsches Entomologisches Institut, Müncheberg (L. Zerche)
FMNH	Field Museum of Natural History, Chicago (A. F. Newton, P. Parrillo)
HNHM	Hungarian Natural History Museum, Budapest (O. Merkl)
IRSNB	Institut Royal des Sciences Naturelles de Belgique, Bruxelles (D. Drugmand)
MCSNG	Museo Civico di Storia Naturale "Giacomo Doria", Genova (R. Poggi)
MCSNM	Museo Civico di Storia Naturale di Milano (F. Rigato)
MCSNT	Museo Civico di Storia Naturale, Trieste (N. Bressi)
MHNG	Muséum d'Histoire Naturelle, Genève (G. Cuccodoro)
MNHNP	Muséum National d'Histoire Naturelle, Paris (N. Berti, J.-C. Lecoq)
MNHUB	Museum für Naturkunde der Humboldt-Universität, Berlin (J. Frisch)
MRSNT	Museo Regionale di Scienze Naturali, Torino (M. Daccordi)
NHMB	Naturhistorisches Museum, Basel (E. Sprecher, D. Burckhardt)
NHMW	Naturhistorisches Museum, Wien (H. Schillhammer)
NME	Naturkundemuseum, Erfurt (via J. Willers)
SMNS	Staatliches Museum für Naturkunde, Stuttgart (W. Schawaller)
SMTD	Staatliches Museum für Tierkunde, Dresden (O. Jäger)
ZIN	Zoological Institute St. Petersburg (via A. Solodovnikov)
ZMMU	Zoological Museum, Moscow State University (N. B. Nikitsky, via V. Gusarov)

The morphological studies and drawings were carried out using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena) with a drawing tube. For the photographs a digital camera (Nikon Coolpix 995) was used. The maps were generated using the online generic mapping tool (GMT) of the Geomar website at www.aquarius.geomar.de/omc.

In order to assess intraspecific variation, approximately 2000 specimens were measured. The following morphological parameters were examined:

AL	length of aedeagus from base to apex of dorsal plate
EL	length of elytra along suture, from apex of scutellum to posterior margin
HL	head length from anterior margin of clypeus to neck
HW	maximal head width
PL	length of pronotum along midline
PW	maximal width of pronotum
TaL	length of metatarsus
TiL	length of metatibia
TL	body length from mandibles to posterior margin of abdominal tergite VIII

Max/min ratios are used to estimate the extent of intraspecific variation of size-related parameters and are given as the maximal value divided by the minimal value of a particular parameter. In the diagrams, size is usually given as the sum of the approximated surface areas of head and pronotum (HL×HW+PL×PW). The shape of the forebody, hereafter referred to as "slenderness", is assessed as the product of relative head length and relative pronotum length, i. e. (HL/HW)×(PL/PW).

3 The species of *Leptobium* of the Western Palaearctic region, exclusive of the Atlantic Islands

3.1 General remarks

The revision revealed a taxonomic confusion of unexpected dimensions, the most remarkable result being a drastic reduction of the number of valid species names. In all, as many as 60 new synonymies are established and only eleven new species are described. The number of valid species and subspecies has declined by nearly 50 % from 106 to 61, and the number of synonyms has risen from 9 to 67 – one of them now in the genus *Philonthus*.

One of the main reasons for the high degree of synonymy is, as usual, an underestimation of intraspecific variation. Especially the widespread species were found to be extremely variable, not only in size, puncturation, and microsculpture. The body proportions, too, even the coloration pattern, a first-level character in the available identification keys, as well as the size and shape of the aedeagus were found to be subject to pronounced intraspecific variation. Colour di- and polymorphisms apparently occur in several species, e. g. *L. gracile* (elytra), *L. creticum* (head and pronotum), *L. doderoi* (head), *L. bicarinatum* (head and pronotum), *L. nigricolle* (pronotum), and *L. artum* (head and pronotum). In many cases, species descriptions were based exclusively on such variable and consequently unreliable characters. As will be discussed below, dispersal power is generally low in the vast majority of species; with few exceptions, they are brachypterous. In addition, evidence suggests that they usually live in subterranean habitats and mainly move in vertical rather than in horizontal directions. Under such circumstances gene flow is impeded (but not completely impossible) even by relatively short distances between different populations, so that a certain character divergence between populations is bound to evolve and not sufficient evidence that these populations represent distinct species. This conclusion is supported by the observation that, within populations, variation is usually rather low, but that considerable differences can be observed between two populations that are separated by a distance of, say, only 10 or 20 km.

Another reason for the difficulty in assessing the taxonomic status of *Leptobium* species is the low degree of interspecific character divergence, which may – occasionally – be even lower than the degree of intraspecific variation. Characters such as body shape, puncturation, microsculpture, pubescence, length of legs and antennae, and the female terminalia are generally rather uniform in the genus and consequently of little taxonomic significance. Even the aedeagus, which usually provides the most reliable characters for species identification in Paederinae, often lacks morphological diversity, but may at the same time be subject to pronounced intraspecific variation; sclerotised internal structures are present, but unsuitable for taxonomic purposes, since there is practically no interspecific character divergence.

High interspecific uniformity combined with high intraspecific variability can only be adequately assessed and distinguished based on a study of abundant material. Except for *L. gracile*, however, *Leptobium* is poorly represented in the collections, because they are rarely found and because many species occur in regions where collecting activity is low (North Africa, Middle Asia, Middle East). The collection of H. Coiffait (MNHNP), for instance, contains a mere 217 pins with *Leptobium* (the number of specimens is not significantly higher); many of the species are represented by single specimens and most of the specimens are types (Fig. 1). Coiffait alone

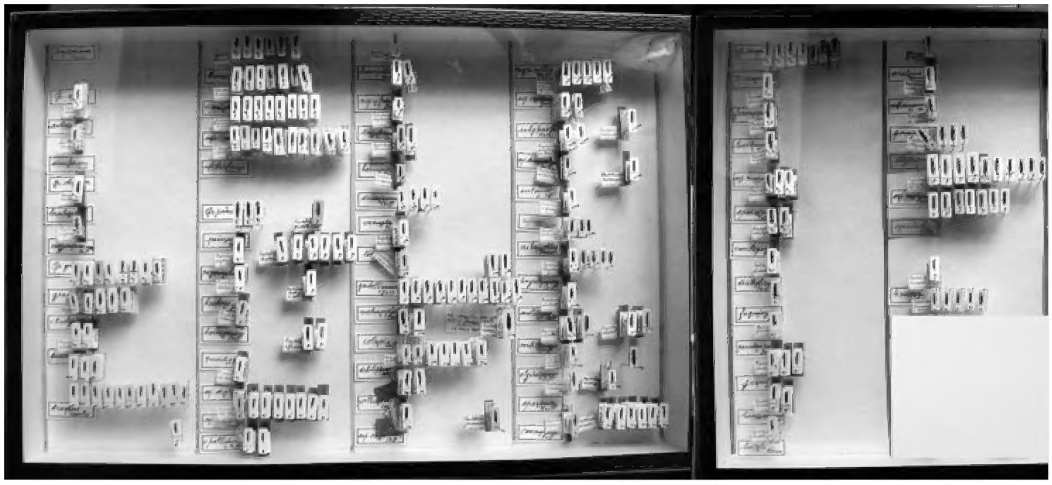


Fig. 1. *Leptobium* in the COIFFAIT collection at the MNHNP.

described 49 species group taxa in *Leptobium*, 38 of which are now synonyms (one of them even in the genus *Philonthus*!). Only 11 of his names are still valid. For a summary of the fate of the names of those authors who described at least three names in *Leptobium* see Tab. 1.

Finally, taxonomic misinterpretations have also resulted from an insufficient consideration of zoogeographic plausibility. Since *Leptobium* species usually occur at lower to intermediate elevations, very restricted distributions would require sound explanations and a general assumption of high-degree endemism would seem weakly supported, even if almost all the species are brachypterous. Consequently, it did not come as a surprise that many species proved to be much more widespread than was previously believed. Accordingly, the extent of synonymy is highest in widespread species, especially from North Africa (see Tab. 2 in chapter 5).

Due to the low character diversity, intrageneric systematics is most difficult. COIFFAIT (1969, 1982) attributed the species to seven species groups – without specifying which species belonged to which group – mainly based on aedeagal morphology (symmetry, presence of carinae, shape and length of dorsal plate, shape of ventral process, etc.). These characters, however, are often highly variable even within

Tab. 1. Synonymic and valid *Leptobium* species group names of authors who contributed at least three names.

author	species group names described	synonyms	valid names	% valid names
COIFFAIT	49	38	11	22.4
JARRIGE	8	5	3	37.5
KOCH	8	5	3	37.5
BORDONI	8	6	2	25.0
FAUVEL	6	1	5	83.3
GRIDELLI	6	1	5	83.3
FAGEL	4	4	0	0.0
WOLLASTON	3	3	3	100.0

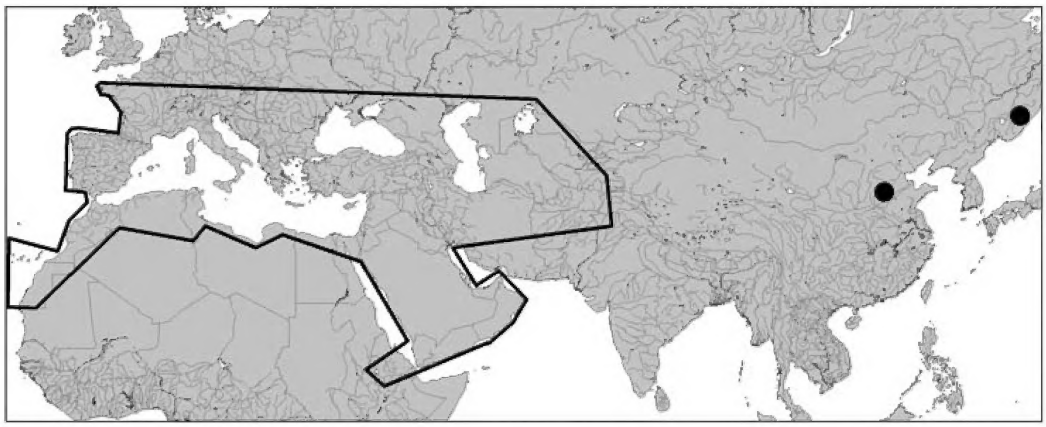


Fig. 2. Distribution of the genus *Leptobium*.

groups of evidently closely related species. In addition, they are at least partly plesiomorphic and consequently of little use for a system based on phylogenetic principles. In the course of the present revision, some species groups were identified that are obviously based on synapomorphies and consequently monophyletic. Such examples are for instance a group of species allied to *L. gracile* (oblong and often apically serrate ventral process of the aedeagus, centrally convex posterior margin of the male sternite VII), including *L. gracile*, *L. rubripenne*, *L. dimidiatum*, *L. turcmenicum*, *L. exiguum*, and *L. chinense*, and some Middle Asian species with pronounced ventral carinae on the elongated dorsal plate of the aedeagus, including *L. subarisi*, *L. pullum*, *L. eppelsheimi*, *L. babatagense*, and *L. khnzoriani*. However, it was not possible to attribute all the species to particular species groups based on apomorphic characters, so that an attempt at a phylogenetic species group concept is here refrained from. The order in which the species are treated (see contents) is mainly based on assumed relatedness, on geographic distribution, and on external similarity.

The present revision revealed that the genus is also present in the Eastern Palaearctic. Thus, *Leptobium* can be considered a Palaearctic genus, its distribution as a whole including the south of the Palaearctic region from the Canary Islands to the Russian Far East, with one species apparently reaching into the northeast of the Ethiopian region (Fig. 2). Only two species are known from the Eastern Palaearctic east of 70° eastern longitude. The regions with the highest species diversity are the Mediterranean and the south of Middle Asia.

The distributions of the individual *Leptobium* species are remarkable in that they are often patchy and disjunct. This is not only true of populations of one and the same widespread species (e. g. *L. illyricum*, *L. syriacum*, *L. densiventre*), but also for species distributions as a whole. The ranges of *L. juani* and *L. pominii*, for instance, are somewhat isolated and separated by a considerable distance from the range of the nearest brachypterous congener, even though their distribution area is not clearly delimited by significant barriers. Moreover, species such as *L. illyricum* are particularly common on islands, although they are brachypterous and surely not capable of long-distance dispersal, but apparently absent from some mainland regions. These observations suggest that the distributions of *Leptobium* species are mainly relict

distributions, i. e. that they are are predominantly a result of local extinctions rather than colonisation.

Very little is known about the bionomics of *Leptobium*. Adult specimens can be found throughout the year, with a maximum in spring and usually another – mostly less pronounced – one in late autumn and early winter. July and August are generally the months with the least number of records. However, there may be some bias due to preferred collecting periods of coleopterists. Remarkably, in several species (e. g. *L. gracile*, *L. syriacum*, *L. densiventre*) teneral specimens were found both in spring and in late autumn, an observation suggesting the presence of two generations per year. To my knowledge, this would be the first example of a bivoltine life-cycle in Paederinae.

Some species are mostly found in various types of – usually not very dense – forest, but the majority of species has been collected primarily in unforested habitats, mostly from under stones. Practically all the species of the genus are predominantly found at lower to intermediate elevations; *L. subglaciale* from Morocco, however, has been collected as high as 3300 m. The general distribution of the genus, the habitats where *Leptobium* is usually found, and the elevations suggest a certain degree of thermophily. As can be inferred from the conspicuously cylindriform body shape, the relatively short legs, and the fact that they are usually found only in small numbers, the species probably have a subterranean habitat, where they may live in crevices or in holes made by other subterranean animals such as earthworms.

At least in one species, *L. fagniezi*, a sexual size dimorphism was observed.

According to Duverger (1995), *Leptobium* is host of *Corethromyces propinquus* Thaxter, 1900, *Sphaleromyces latrobii* Thaxter, 1894, *Rhacomyces pilosellus* Robin, 1871, and *Rhacomyces cristatus* Thaxter, 1893 (Ascomycetes, Laboulbeniales).

A study of the aedeagi of numerous specimens of *Leptobium* and a comparison with the aedeagus morphology of other paederine genera suggests that what Coiffait (1969, 1982) refers to as "région dorso-apicale" and "opercule" is apparently homologous to the dorsal plate and the ventral process, respectively, of other paederines. The latter terms will be used below.

Regarding the Canarian species, the diagnoses and illustrations in Assing (1999a) should be consulted. Some additional records are supplemented in chapter 4 and the species are also considered in the key in chapter 6.

Due to the previous taxonomic confusion in the genus, many literature records must be considered doubtful. Below, zoogeographic or ecological literature data are considered only when the identification can be regarded as reliable.

As required by the format of the journal, the original binomina and the references to the original descriptions (author, publication year, page number) are separated by semicolons in the following species sections. The authors indicated after the semicolons are at the same time the authors of the respective species names.

3.2 *Leptobium gracile* (Gravenhorst, 1802) (Figs. 3–44)

Lathrobium gracile; Gravenhorst (1802: 182).
Lathrobium biguttulum; Lacordaire (1835: 425).
Dolicaon haemorrhous; Erichson (1840: 577 f.), **n. syn.**
Dolicaon truquii; Saulcy (1864: 645).
Dolicaon biguttulus v. *analis*; Reitter (1902: 206), **n. syn.**
Dolicaon winkleri; Koch (1937a: 263 f.), **n. syn.**
Dolicaon haemorrhous cedri; Koch (1937b: 27 f.), **n. syn.**

Dolicaon berberus; KOCH (1937b: 28), **n. syn.**
Dolicaon biguttulus brachypterus; COIFFAIT (1954: 97).
?*Leptobium duplicatum*; FAGEL (1958: 27), **n. syn.**, presumably synonymous, but types not available.
Leptobium piochardi; COIFFAIT (1969: 852, 868), **n. syn.**
Leptobium obenbergeri; BORDONI (1984: 83 f.), **n. syn.**
Leptobium limnodes; BORDONI (1984: 84), synonymy by GUSAROV (1995), here confirmed.

Types examined

L. gracile: Lectotype ♂ [dissected prior to present study], here designated: 6306 / *gracilis* Gr., Lusit. HOFFMG / Zool. Mus. Berlin / *Leptobium gracile* (Grav.) GUSAROV det. 1991 / Lectotypus *Lathrobium gracile* Gravenhorst desig. V. ASSING 2004 / *Leptobium gracile* det. V. ASSING 2004 (MNHUB). – Paralectotype ♂: Zool. Mus. Berlin / Paralectotypus ... (MNHUB).

D. haemorrhous: Lectotype ♂, here designated: 6305 / Hist.-Coll. (Coleoptera), Nr. 6305 (1. Ex.) *Dolicaon haemorrhous* Erichs. Europ. merid., Zool. Mus. Berlin / *haemorrhous* Er. Sicil. DAHL, Sard. GENÉ / Lectotypus *Dolicaon haemorrhous* Erichson desig. V. ASSING 2004 / *Leptobium haemorrhoum* (Erichson) det. V. ASSING 2004 (MNHUB). – Paralectotypes: 5 exs.: same data as lectotype, but 2., 3., ... 6. Ex. (MNHUB).

L. anale: Lectotype ♂, here designated: Caucasus, Araxesthal, LEDER. REITTER / coll. REITTER / *biguttulus* v. *analis* m. / Holotypus [sic] 1902 *Dolicaon biguttulus* v. *analis* Reitter / *Leptobium gracile* (Grav.) ♂, GUSAROV det. 1991 / Lectotypus ♂ *Dolicaon analis* Reitter desig. V. ASSING 2003 / *Leptobium gracile* (Gravenhorst) det. V. ASSING 2003 (HNHM).

L. winkleri: Lectotype ♂, here designated: Adana, Asm., VI.1934, NEUBERT / Cotype / Lectotypus ♂ *Dolicaon winkleri* Koch desig. V. ASSING 2004 / *Leptobium gracile* (Gravenhorst) det. V. ASSING 2004 (NHMB). – Paralectotypes: 15 exs.: same data as lectotype (MCSNM, NHMB, NHMW).

D. haemorrhous cedri: Lectotype ♂, here designated: Aguelman, Sidi Ali, 21.5.1923 / Paratypus [sic] / *Dolicaon haemorrhous* ssp. *cedri* Koch / Museo Milano / *Leptobium haemorrhoum cedri* (Koch) V. I. GUSAROV det. 1993 / Lectotypus *Dolicaon haemorrhous cedri* Koch desig. V. ASSING 2004 / *Leptobium haemorrhoum* (Erichson) det. V. ASSING 2004 (MCSNM). – Paralectotypes: 1 ♂: same data, but with labels "Typus / Prep. microscop. No. 2108" (MCSNM); 2 exs.: same data, but 22.5.1923 (NHMB); 20 exs.: Sidi Ali, Atlas, 17.3.33 (NHMB, NHMW).

D. berberus: Lectotype ♂, here designated: Bou Scoura [15 km S Casablanca], 21.2.35 Mar, R. e C. KOCH / Paratypus [sic] / *Dolicaon berberus* Koch / Museo Milano / *Leptobium haemorrhoum* (Er.) V. I. GUSAROV det. 1993 / Lectotypus *Dolicaon berberus* Koch desig. V. ASSING 2004 / *Leptobium haemorrhoum* (Erichson) det. V. ASSING 2004 (MCSNM). – Paralectotypes: 7 exs.: same data as lectotype (MCSNM, NHMB).

L. piochardi: Holotype ♂: Syrie, Hidjane / Holotype / Museum Paris coll. H. COIFFAIT / *Leptobium piochardi* Coiff., H. COIFFAIT det. 1968 / *Leptobium gracile* (Gravenhorst) det. V. ASSING 2003 (MNHNP). – Paratype ♀: same data as holotype (MNHNP).

L. limnodes: Paratypes: 15 exs.: 9-IV-69, Sanlúcar, Cadix [sic] Esp, A. COMELLINI Genève / Paratypus / *Leptobium limnodes* n. sp., Det A. BORDONI 1983 / *Leptobium gracile* (Gravenhorst) det. V. ASSING 2003 (MHNG, cBor).

L. obenbergeri: Holotype ♂: Parkán, Slovakia mer., Doc OBENBERGER / Holotypus / *Leptobium obenbergeri* n. sp., Det A. BORDONI 1983 / *Leptobium* ♂ *gracile* (Grav.), GUSAROV det. 1991 / *Leptobium gracile* (Gravenhorst) det. V. ASSING 2003 (cBor).

Additional material examined (total, including types: 1842 exs.)

Tunisia – 1 ex., Al Kaf ["Le Kef", 36°05N, 8°45E], X.1951, leg. NORMAND (cTro); 8 exs., Le Kef (DEI, NHMB, NHMW, cAss); 1 ex., Rādis ["Rades"], leg. GROSSLAUDE (cTro); 1 ex., Ayn ad Darahim ["Ain Draham", 36°47N, 8°42E], XI.1945, leg. DEMOFLYS (cTro); 9 exs., Kairouan, XI.1936, leg. NORMAND (HNHM, IRSNB, cTro, cAss); 6 exs., Kairouan, X.1901 (IRSNB); 1 ex., Al Jubaybina ["Djebibina", 36°07N, 10°06E], XI.1936, leg. DEMOFLYS (MHNG); 1 ex., "Fond. Djedid" (MHNG); 3 exs., Al Firnānah ["Fernana"], X.1946, leg. DEMOFLYS (cTro); 1 ex., Hajeb el Aioun ["Hadjeb-el-Aioun", 35°24N, 9°33E], VI.1941, leg. DEMOFLYS (cTro); 2 exs., Souk-el-Arba, XI.1899 (HNHM); 13 exs., Souk-el-Arba [= Jundūbah] (IRSNB, NHMB, NHMW, SMNS); 1 ex., Tunis, 27.II.1929, leg. SCHATZMAYR (MCSNM);

1 ex., Tunis (NHMW); 1 ex., Cébola B. Ammor, 15.V.1962, leg. LINNAVUORI (NHMW); 1 ex., Teboursouk [36°28N, 9°15E] (IRSNB); 2 exs., Sousse, Hammamet, El Besbassia, 10 km SW Hammamet, 28.XI.–6.XII.1995, leg. WRASE (cSch); 1 ex., road Mateor – Beja, km 26, 3.XII.1999 (cAdo); 3 exs., Bizerte (IRSNB, NHMW); 2 exs., locality not specified, leg. REITTER (NHMB, cAss).

Algeria – 1 ex., Tiaret, II.1897, leg. DE VAULOGER (cTro); 1 ex., Ben Aknoûn, 3.XII.1959, leg. MAHOUX (cTro); 27 exs., Algier (DEI, HNHM, SMTD, cAss); 1 ex., Massif de l'Aurès, Medina, 1.V.1978, leg. MOURGNA (cSch); 1 ex., Médéa, leg. QUEDENFELDT (NHMW); 1 ex., Médéa (IRSNB); 3 exs., St. Charles, leg. THERY (NHMW, cAss); 1 ex., St. Charles (IRSNB); 9 exs., Annaba ["Bône"] (DEI, IRSNB); 4 exs., Bou Berak [36°53N, 3°50E] near Dellys (DEI, IRSNB); 11 exs., Oran, leg. BREIT, DESBROCHERS, etc. (DEI, IRSNB, MNHUB, NHMW, cAss); 1 ex., Misserghin (IRSNB); 2 exs., Tébessa (MHNG, cAss); 4 exs., Mlilia ["A. Mlila"] (MHNG, cAss); 1 ex., Batna (IRSNB); 2 exs., Skikda ["Philippeville", 36°53N, 6°54E] (IRSNB); 2 exs., Blida (MHNG); 4 exs., Grande Kabylie, Tifrit-n-Aït el Hadj, 700 m, 21.V.1953, leg. FAGEL (IRSNB); 4 exs., Grande Kabylie, Yakouren, 800 m, V.1953, leg. FAGEL (IRSNB, cAss); 1 ex., Yakouren, Forêt Beni-Ghobri, Bois Sacré, 750 m, V.1953, leg. FAGEL (IRSNB); 5 exs., Yakouren (MHNG, cAss); 2 exs., Petite Kabylie, Jijel ["Djidjelli", 36°48N, 5°46E], 25.V.1953, leg. FAGEL (IRSNB); 7 exs., locality not specified (DEI, IRSNB, SMTD).

Morocco – 4 exs., Larache, leg. FRANZ (NHMW, cAss); 7 exs., Larache, ruins of Lixus, 6.II.2001, leg. LACKNER (cHla, cAss); 1 ex., Aguelman, Sidi Ali, 22.III.1961 (NHMW); 1 ex., Aguelman, Sidi Ali, 19.V.1975, leg. FONGOND (cTro); 2 exs., Mohammedia, Oued Mellah, 33°43N, 7°20W, 4.II.2003, leg. STARKE (cFel); 5 exs., Moyen Atlas, Col du Zad [33°01N, 5°04W], 9.III.1980, leg. FÜLSCHER & MEYBOHM (MHNG, cAss); 1 ex., same locality, leg. FRANZ (NHMW); 4 exs., Col du Zad, 22.III.1968, leg. COIFFAIT (NHMW, cAss); 9 exs., Jbel Tazeka [34°07N, 4°09W], 11.III.1980, leg. FÜLSCHER & MEYBOHM (cAss, cWun); 4 exs., Chiker ["Daya Chiker"], 10.IV.1939, leg. ANTOINE (cTro); 2 exs., Fedalate, leg. ANTOINE (Tro); 1 ex., Méhédya-Kenitra, Plaine du Sebou, I.1960, leg. MUSSARD (cKor); 8 exs., Sebou, inundation, XII.1959 (NHMW, cAss); 2 exs., Oued Sebou, 25.I.1960, leg. COMELLINI (MHNG, cAss); 1 ex., Azrou-Zad, 13.III.1964 (NHMW); 1 ex., Azrou, 17.III.1933 (NHMB); 1 ex., road Meknes – Sidi Qacem, 20 km NNE Meknes, 20.II.1999, leg. WRASE (cSch); 2 exs., Loukus delta, 8.III.1962 (NHMW, cAss); 12 exs., Tanger (IRSNB, MHNG, MNHUB, NHMW); 1 ex., Tanger, 19.III.1999, leg. LACKNER (cRou); 1 ex., 18 km SE Tanger, Hakkama, 250 m, arable land and fallows, 16.II.2003, leg. WRASE (cAss); 1 ex., Tanger (IRSNB); 1 ex., Esmir (IRSNB); 1 ex., 4 km E Tétouan, Oued Hajera, arable land and fallows, 15.II.2003, leg. WRASE (cSch); 5 exs., locality not specified (MHNG, NHMW, SMTD).

Portugal – 1 ex., Algarve, Armacão de Pera, 9.IV.1979, leg. TRONQUET (cTro); 1 ex., Lisboa (NHMW); 4 exs., locality not specified (HNHM, NHMW, cAss).

Spain – Andalucía: 12 exs., Tarifa, I.1997, leg. POOT (cWun, cAss); 2 exs., Tarifa, III.1994, leg. POOT (cWun); 2 exs., Tarifa, 6.V.1956, leg. FAGEL (IRSNB); 4 exs., Cádiz, Sierra de Luna, 350 m, meadow, under stone, 28.III.1994, leg. ASSING, WUNDERLE (cAss, cWun); 4 exs., Cádiz, 15 km N Jerez, Marisma de Trebujena, bank of Guadalquivir river, 31.I.1998, leg. WRASE (cSch); 1 ex., Cádiz, Barbate de Franco, saline, 8.V.1991, leg. HIEKE (MNHUB); 1 ex., Jerez, leg. COMELLINI (MHNG); 2 exs., Cádiz, Pto. Cabrito, 6.XI.1963, leg. COMELLINI (MHNG, cAss); 4 exs., San Roque, 9.XI.1963, leg. COMELLINI (MHNG); 3 exs., Sevilla – San Lúcar, at light source, 31.VII.1924, leg. EBNER (NHMW, cAss); 1 ex., Sevilla, leg. FRANZ (NHMW); 2 exs., Sevilla, Palacios, leg. FRANZ (NHMW); 12 exs., Granada, Sierra de la Sagra, 17.IV.1993, leg. TRONQUET (cTro); 1 ex., Málaga, SW Ronda, 11.VI.1991, leg. WRASE (cSch); 2 exs., Sierra Ronda, Mte. Arastepa, leg. FRANZ (NHMW, cAss); 1 ex., Ronda, 25.V., leg. HEYDEN (DEI); 13 exs., Carmona env., Hof Alamaja, Tierra negra, 21.II.1961, leg. FRANZ (NHMW, cAss); 1 ex., Sevilla, Las Cabezas, 7.IV.1959, leg. BESUCHET (MHNG); 8 exs., locality not specified (DEI, HNHM, IRSNB). – Castilla-La Mancha: 1 ex., Albacete, Horna, Laguna, 38°50N, 1°36W, 19.V.2002, leg. STARKE (cAss). – Murcia: 1 ex., Cartagena, leg. SIMON (HNHM). – Canary Islands (see also ASSING 1999a): 2 exs., Gran Canaria, locality not specified, 1890, leg. ALLUAUD (MNHNP); 1 ex., locality not specified (IRSNB). – Locality ambiguous, not specified or not identified: 1 ex., "Pozuelo" (IRSNB); 13 exs., "Hispania", "Espagne", etc. (DEI, HNHM, MHNG, MNHUB, NHMW); 1 ex., "Rosas., Costa Brava", VI.1967, leg. BUDBERG (NHMW).

France – Poitou-Charentes: 1 ex., Île de Ré (IRSNB). – Languedoc-Roussillon: 4 exs., Gard, Aigues-Mortes, 4.VII.1997, leg. THEROND (cTro); 4 exs., Aigues-Mortes, leg.

PERROT (MHNG); 2 exs., Aigues-Mortes, 13.V.1951, leg. TEMPÈRE (MHNG); 1 ex., Perpignan, Port-Barcarès, 10.IV.1992, leg. STARKE (cAss); 11 exs., Hérault, Lattes (MHNG, cAss); 2 exs., Hérault, Montpellier, leg. RAFFRAY (ZIN); 4 exs., Montpellier (IRSNB); 1 ex., Hérault, Étang de l'Arnel [43°32N, 3°53E], 1.V.1930 (cAss); 14 exs., Beziers, leg. PUEL (IRSNB, MHNG, NHMW); 9 exs., Hérault, Palavas-les-Flots, I.1955 (MHNG); 3 exs., Hérault, Ventres, 11.V.1951, leg. TEMPÈRE (MHNG); 10 exs., Palavas-les-Flots, XII.1955 (MHNG); 10 exs., Palavas-les-Flots, IV.1952 (MHNG); 8 exs., Palavas-les-Flots, III.1952 (cAss); 6 exs., Palavas-les-Flots, VI.1953 (MHNG); 1 ex., Hérault, Castanet-le-Haut, 15.VI.1969 (IRSNB); 1 ex., Hérault, locality not specified (MHNG). – Provence: 1 ex., Var, Roquebrune, leg. DEMOFLYS (cTro); 4 exs., Bouches-du-Rhône, Camargue, St. Maries de la Mer, salty ground, 15.V.1994, leg. SCHÜLKE & GRÜNBERG (cSch); 3 exs., St. Maries de la Mer, 10.–11.IV.1982, leg. KIENER (MHNG); 1 ex., St. Maries de la Mer, XI.1979 (MHNG); 3 exs., St. Maries de la Mer (MHNG); 1 ex., St. Maries de la Mer, V.1969, leg. DE ROUGEMONT (cRou); 2 exs., Camargue, Touradons, 13.XI.1976, leg. CURTI (MHNG); 3 exs., Touradons, V.1966 (MHNG); 2 exs., Bouches-du-Rhône, Albaron, 24.IV.1957, leg. TEMPÈRE (cAss); 1 ex., Bouches-du-Rhône, Marignane (IRSNB); 31 exs., Camargue (MHNG, NHMB, cAss); 10 exs., Var, Hyères (DEI, IRSNB, ZIN). – Corse: 2 exs., Aleria, 1905, leg. LEONHARD (DEI, cAss). – Locality not specified or not identified: 6 exs., "Gallia", etc. (DEI, MHNG, NHMW); 2 exs., "Les Lacs" (MHNG).

Germany – 2 exs., Thüringen, leg. MARTINI (MNHUB); 3 exs., "Germania" (SMTD).

Austria – Wien/Niederösterreich: 1 ex., Wien env., leg. REITTER (HNHM); 3 exs., Wien, leg. MILLER, etc. (DEI, SMTD); 9 exs., Wien, inundation, 31.XII.1947, leg. LECHNER (NHMW, cAss); 6 exs., Mödling, leg. BLÜHWEISS, FRANZ, REITTER (HNHM, NHMW, SMNS); 2 exs., Eichkogel near Mödling, 17.VI.1949, leg. EBNER (NHMW); 1 ex., Mühlleiten, leg. FRANZ (NHMW); 1 ex., Zellerndorf (MHNG). – Burgenland: 2 exs., Neusiedlersee, Podersdorf, flood debris, 7.IV.1991, leg. SPRICK (cAss); 4 exs., Neusiedlersee, northern shore, leg. SCHEERPELTZ (NHMW); 181 exs., Neusiedlersee, leg. BERNHAUER, BREIT, FRANZ, GANGLBAUER, KAUFMANN, SCHUSTER, VOGEL, WINKLER, HOFFMANN (HNHM, IRSNB, MHNG, NHMB, NHMW, SMTD, cAss, cBor); 12 exs., Neusiedlersee, 7.–8.IV.1901, leg. PINKER (NHMW); 5 exs., Neusiedlersee, 2.–4.IV.1926, leg. STÖCKLEIN (NHMB); 1 ex., Neusiedlersee, 18.V.1926, leg. NATTERER (NHMW); 23 exs. [5 exs. teneral], Neusiedl am See, 10.–12.IX.1924, leg. STÖCKLEIN (NHMB); 1 ex., Jois, 25.III.1959, leg. LECHNER (NHMW); 3 exs., Donnerskirchen, leg. FRANZ (NHMW); 1 ex., Gross-Petersdorf, leg. FRANZ (NHMW); 3 exs., Ruster Hügelzug, leg. FRANZ (NHMW); 7 exs., Zurndorf, leg. FRANZ (NHMW). – Locality not specified: 9 exs., "Austria" (DEI, MNHUB, SMTD).

Italy – Trentino-Alto Adige: 1 ex., Bolzano, leg. OTTO (MHNG). – Lombardia: 1 ex., Godiasco (PV), 350 m, 18.IX.1995, leg. PILON (cAdo). – Veneto: 1 ex., Venezia, Marghera, XI.1957, leg. CANZONERI (MCSNM). – Toscana: 6 exs., Pratolino (FI), IV.1971, leg. BORDONI (cBor); 1 ex., Pratolino, I.1973, leg. BORDONI (cBor); 2 exs., SW Prato, Casini, Caserana, 40 m, 27.IV.2001, leg. ROCCHI (cBor); 1 ex., Campi (FI), 11.X.1969, leg. ROCCHI (cBor); 1 ex., Passo della Futa [44°06N, 11°16E], IV.1971, leg. BORDONI (cBor); 3 exs., Osmannoro (?), XII.1974, leg. CASTELLINI (cTro); 1 ex., Pso. della Raticosa, leg. CASTELLINI (cTro); 4 exs., Piombino (NHMW, SMTD); 1 ex., Pisa, leg. RASETTI (MCSNM); 1 ex., Montepulciano, IV.1922, leg. MARCHI (MCSNM); 1 ex., Firenze, Peretola, 17.XI.1936, leg. MARTELLI (MCSNM); 1 ex., Firenze, Sesto, IV.1936, leg. GAGLIARDI (MCSNM); 2 exs., Firenze, V.1924 and V.1937, leg. LOMBARDI (MCSNM); 12 exs., Vallombrosa (MHNG, cAss); 3 exs., Follonica, beach, X.1960, leg. BREUNING (MNHUB); 5 exs., Follonica, IX.1962, leg. BREUNING (MNHUB, cAss); 1 ex., S Grosseto, Uccellina, Alberese [42°40N, 11°05E], 22.IV.1978, leg. GIUGLIELMI (cAdo); 1 ex., locality not specified (DEI). – Emilia-Romagna: 3 exs., Modena, IV.1910, leg. FIORI (cBor); 1 ex., San Cataldo [44°40N, 10°53E], 1.VII.1996, leg. FIORI (MNHUB); 2 exs., same data, but 19.V.1995 (MNHUB); 1 ex., Alfonsine (RA), 30.III.1981, leg. CONTARINI (cBor); 3 exs., Valli di Comacchio, 25.I.1974 (cBor); 1 ex., Fezzano (?), III.1969, leg. BORDONI (cBor); 1 ex., Bologna, 21.X.1894, leg. PORTA (MCSNM); 1 ex., locality illegible, IV.1969 (cTro); 1 ex., Piacenza, 31.X.1978, leg. FACCHINI (cAdo); 1 ex., locality illegible, 8.V.1907, leg. FIORI (MNHUB). – Umbria: 1 ex., Bevagna, leg. FIORI (MNHUB). – Abruzzo: 2 exs., locality illegible, leg. FIORI (MNHUB). – Puglia: 1 ex., Laterza (TA), 29.IV.1973, leg. ANGELINI (cAng); 2 exs., Gravina di Puglia (BA), oakwood, 19.X.1984, leg. DE MARZO (cAng); 1 ex., Francavilla Fontana (BR), meadow, 5.II.1992, leg. ANGELINI (cAng); 4 exs., Taranto env., meadow, 24.XII.1994, leg. ANGELINI (cAng, cAss); 1 ex., Circ.

Mar Piccolo (TA), 27.XII.1992, leg. MONTEMURRO (cAng); 1 ex., F. Lato, 10 km dalla foce (TA), 2.I.1977, leg. ANGELINI (cAng); 1 ex., Taranto, 24.XII.1994, leg. ANGELINI (cAss); 4 exs., Monte Gargano, 6.IV.1907, leg. HILF (DEI, SMTD, cKor); 3 exs., Monte Gargano, Mte. S. Angelo, leg. HOLDHAUS (NHMW); 1 ex., Monte Gargano (DEI); 4 exs., Margherita di Savoia, saline, 24.IV.1974, leg. COLA & FREUDE (SMNS, cAss); 1 ex., Grottaglie, leg. PAGANETTI (NHMB); 1 ex., "San Basilio" (NHMW). – Lazio: 2 exs., Roma (IRSNB, NHMB); 1 ex., Roma, Ostia, 12.III.1950, leg. DE MAGGI (cBor); 1 ex., Roma, S. Basilio, 17.XI.1966, leg. COLONELLI (cBor); 3 exs., Roma, Acilia, II.1948, leg. CERRUTI, BRIVIO (MCSNM); 1 ex., Acilia, III.1948, leg. CERRUTI & BRIVIO (MCSNM); 2 exs., Acilia, XII.1948, leg. BRIVIO (MCSNM); 6 exs., Acilia, IV.1949, leg. BRIVIO (MCSNM); 1 ex., Acilia, 12.XII.1914, leg. CASTELLINI (NHMB); 1 ex., Roma, Lido, 24.III.1948, leg. BRIVIO (MCSNM); 4 exs., Aniene river, leg. PORTA (MCSNM); 3 exs., Ponte Galeria, 14.II.1962 (MCSNM); 1 ex., Roma, Ponte Galeria, IV.1960, leg. DE MAGGI (cBor); 4 exs., Fiumicino, 1901, leg. FIORI (MNHUB, cAss). – Basilicata: 6 exs., L. S. Giuliano (MT), ponte Cagnolino, IX.1992, leg. ANGELINI (cAng); 1 ex., Oasi WWF "L. Pantano di Pignola" (PZ), 29.V.1993, leg. ANGELINI (cAng); 1 ex., Salandra sc. (MT), str. Bas. km 54, 2.I.1994, leg. ANGELINI (cAng); 1 ex., Matera, Nova Siri, 500 m, 29.IV.1979, leg. ANGELINI (cRou); 1 ex., Matera, Lago di S. Giuliano [40°37N, 16°30E], 25.X.1993, leg. ADORNO (cAdo). – Calabria: 4 exs., Maida, leg. FIORI (MNHUB, cAss). – Sardegna: 1 ex., Uras, 22.I.1970, leg. CASSOLA (cBor); 36 exs., Maracalagonis, 20.I.1985, leg. LEO (cAss); 2 exs., Cagliari, 1892, leg. LOSTIA (NHMW); 1 ex., Cagliari (IRSNB); 2 exs., locality illegible, 18.IV.1890 (DEI); 1 ex., Carloforte di San Pietro (SMTD); 1 ex., Oristano (SMTD); 1 ex., Oristano, Cabras, 23.V.1890 (NHMB, SMTD); 1 ex., Oristano, 12.IV.1971, leg. VIGNA (cBor); 4 exs., Oristano, 5.V.1936, leg. BURLINI (MCSNM); 4 exs., locality illegible, 13.V.1890 (MNHUB); 6 exs., locality not specified, leg. DAMRY, LOSTIA, SEQUENI, etc. (IRSNB, NHMW). – Sicilia: 1 ex., Castelbuono, Madonie National Park, 1500 m, V.2000 (cAss); 5 exs., Catania (DEI, SMTD, cAss); 7 exs., Catania, IV.1935, leg. FREY (NHMB); 4 exs., Palermo, leg. ROTTENBERG (DEI); 1 ex., Palermo (IRSNB); 4 exs., Ficuzza, 1906, leg. LEONHARD (DEI); 2 exs., Randazzo, 4.V.1933, leg. LIEBMANN (DEI, cAss); 4 exs., Lentini, 24.II.1926, leg. SCHATZMAYR (MCSNM, NHMB, cAss); 4 exs., Siracusa, 18. and 26.II.1906 (MNHUB); 19 exs., Castellammare del Golfo, C. da Catuffo, 2.III.1993 (cAdo); 1 ex., Catuffo, M. Sparacio, 2.III.1994 (cAdo); 1 ex., S Raddusa, Mte. Giresi [37°27N, 14°31E], 300 m, 4.XI.1993 (cAdo); 18 exs., locality not specified (DEI, HNHM, IRSNB, MCSNT, MNHUB, NHMW, SMTD, cAss). – Locality illegible: 2 exs., X.1942 (MCSNT); 1 ex., Pugliolo (?) paludi, IV.1932, leg. FALZONI (MCSNT); 2 exs., leg. FIORI (MNHUB).

Italian or Slovenian territory – 1 ex., "Görz" (NHMW).

Slovakia – 1 ex., 35 km W Kosice, Turniansky Hrad near Zádiel, 28.III.2002, leg. HLAVÁČ (cHla).

Hungary – 57 exs., Neusiedlersee (= Fertő tó) (DEI, HNHM, MCSNM, MHNG, MNHUB, NHMB, NHMW, SMNS, SMTD, ZIN); 1 ex., Velencei-tő, Dinnyés szikes-tő, 27.IV.1950, leg. KASZAB (HNHM); 1 ex., Dinnyés szikes-tő, shore of salt lake, 15.VI.1979, leg. UHLIG (MNHUB); 9 exs., Velencei-tő, Velence, szikes-part, 5.VI.1951, leg. BALOGH & SOMFAY (HNHM); 16 exs., Budapest (HNHM); 1 ex., Budapest, Hármas-határhegy [47°33N, 19°01E] (HNHM); 1 ex., Budapest, Kelenföld (HNHM); 2 exs., Budapest, Lágymányos [47°29N, 19°03E] (HNHM); 1 ex., Budapest, Csillaghegy (HNHM); 1 ex., Budapest, környéke, Kamaraerdő [47°26N, 18°59E] (HNHM); 1 ex., Budapest, környéke Érd [47°24N, 18°55E] (HNHM); 1 ex., Budapest, Isaszeg [47°32N, 19°23E] (HNHM); 1 ex., Budapest, Mátyáshegy, 13.III.1936, leg. KASZAB (HNHM); 1 ex., Budapest, Háros sziget [47°24N, 19°02E], 18.V.1918 (HNHM); 1 ex., Tihany, 14.V.1934, leg. SZÉKESSY (HNHM); 1 ex., Budafok, 11.V.1910 (HNHM); 1 ex., Budaörs, leg. CSIKI (HNHM); 1 ex., Martonvásár (HNHM); 1 ex., Mosonmagyaróvár ["Magyaróvár"], 20.VIII.1938, leg. SIROKI (HNHM); 5 exs., Pécs (HNHM, MNHUB, NHMW); 2 exs., Esztergom, leg. BOKOR (HNHM); 2 exs., Györ [47°41N, 17°38E], leg. BOKOR (HNHM); 2 exs., Pilis Mts. [47°40N, 18°55E], leg. BOKOR (HNHM); 1 ex., Bist-Fürdő, 1940, leg. CSIKI (HNHM); 23 exs., Szeged, leg. STILLER (HNHM); 1 ex., Sopron (HNHM); 1 ex., Tolna megye (HNHM); 11 exs., Dombóvár, 10.III.1947, leg. GEBHARDT (HNHM); 3 exs., Simontornya (HNHM); 1 ex., Túrkeve, 25.–31.III.1934, leg. BALOGH (HNHM); 14 exs., Dömsöd, Apajpuszta, 29.V.1952, leg. KASZAB & SZÉKESSY (HNHM, cAss); 1 ex., Tiszasüly, 19.V.1956, leg. KASZAB (HNHM); 2 exs., Tiszasüly, 1956, leg. LENCZI (HNHM); 1 ex., Mindszent (Tisza), 22.IV.1964, leg. ENDRŐDY-YOUNGA (HNHM); 1 ex., Somogy, Zamárdi, Töreki lap, 24.V.1953, leg. SZÉKESSY (HNHM);

1 ex., Bács-kiskun, Fülöpháza, Hattyús-szék, 90 m, 17.V.1985, leg. Ádám & Hámori (HNHM); 3 exs., S Csongrád, Kettőshalom, 6.V.1982, leg. Ádám (HNHM, cAss); 1 ex., Békés, Szarvas, 7.VIII.1995, leg. Merkl (HNHM); 1 ex., Békés, Szabedkigyőm, Nagy-gyöp, 90 m, 26.V.1982, leg. Ádám (HNHM); 1 ex., Békés, Kardoskút, Fehér-tő, 90 m, 7.V.1982, leg. Ádám (HNHM); 1 ex., Gyomol, 24.V.1912, leg. Csiki (HNHM); 1 ex., Kalocsa, leg. Speiser (HNHM); 1 ex., Kiskunfélegyháza, leg. Móczár (HNHM); 1 ex., Jászberény, leg. Móczár (HNHM); 2 exs., Hortobágy N. P., Újszentmargita, IV.1974, leg. Horvatovich (HNHM, cAss); 1 ex., Hortobágy N. P., Tiszafüred, 24.IV.1974, leg. Mahunka (HNHM); 1 ex., Hortobágy N. P., Püspökkladány, 23.IX.1974, leg. Mahunka (HNHM); 2 exs., Hortobágy N. P., Nagyiván, V.1974, leg. Kaszab (HNHM, cAss); 2 exs., Szeged-Újszeged [46°17N, 20°14E], 11.IV.1932 and 14.II.1933, leg. Erdös (HNHM); 1 ex., Hódmezővásárhely ["Vásárhely"], IV.1929, leg. Horváth (HNHM); 1 ex., same locality, leg. Kuthy (HNHM); 1 ex., Szentes, leg. Horváth (HNHM); 2 exs., Kiskunsági N. P., Lakitelek, Holt-Tisza, 16.IX.1980, leg. Ádám & Hámori (HNHM); 1 ex., Kiskunsági N. P., Kunszentmiklós, Szikes legelő, 5.IV.1975, leg. Merkl (HNHM); 1 ex., 12 km NE Kunszentmiklós, Felsőpeszér, 5.IX.1948, leg. Kovács (HNHM); 1 ex., Bükki N. P., Cserépfalu, Derda-kaszáló, 450 m, 15.V.1985, leg. Merkl (HNHM); 1 ex., Bükk-hegység, Nagyvisnyó, Elzalak, VI.1956, leg. Székessy (HNHM); 4 exs., Heves, Kerecsend, 150 m, 11.X.1984, leg. Ádám & Hámori (HNHM, cAss); 1 ex., Csepel [47°25N, 19°04E], 1908, leg. Biró (HNHM); 3 exs., Emőd, IV.1907 (MCSNM). – Locality not specified or not reliable: 12 exs. (HNHM, MNHUB); 7 exs., Siófok, leg. Lichtneckert (HNHM).

Romania – 1 ex., Mármaros, leg. Friv. & Pável (HNHM); 1 ex., Mármaros, Szabolcsviss, 12.VI.1933, leg. Fodor (HNHM); 2 exs., Bârlad (NHMW), leg. Montandon (NHMW, ZIN); 3 exs., Costineşti, leg. Netolitzky (NHMW); 1 ex., Mehadia (SMTD); 1 ex., S Bukarest, Comana, leg. Montandon (IRSNB).

Croatia – 1 ex., Istria, "Sicciolo", saline, 8.V.1938, leg. Springer (MCSNM); 1 ex., Velebit, leg. Padewieth (HNHM); 5 exs., Zagreb (HNHM); 1 ex., Mljet island ["Meleda"], 1.IV.1906 (NHMB); 1 ex., Metkovi, leg. Kniz (MHNG); 9 exs., Zadar, leg. Müller, Novak (MCSNT, SMTD); 1 ex., Zemonico near Zadar, XI.1914, leg. Novak (MCSNM); 1 ex., Zemonico (MCSNM); 1 ex., Zemonico, 21.III.1913 (MCSNM); 1 ex., Bokanjac ["Boccagnazzo"], leg. Schatzmayr (MCSNM); 1 ex., Sinj, leg. Karaman (MCSNM).

Bosnia-Herzegovina – 1 ex., Dabarsko polje [43°05N, 18°12E], 17.–22.VI.1903, leg. Hlaváč (cTro); 12 exs., Mostar (HNHM, SMTD, cAss); 1 ex., Dračevo (HNHM); 1 ex., Čapljina, leg. Apfelbeck (HNHM); 4 exs., "Kara otok" (SMNS); 13 exs., Maklen pass [43°51N, 17°34E] (DEI); 1 ex., Bjelina (NHMW); 1 ex., Trebinje (SMTD); 5 exs., "Herzegowina" (HNHM, SMNS); 2 exs., "Bosnia" (HNHM, IRSNB).

Yugoslavia – 2 exs., Serbia, locality not specified (MNHUB).

Montenegro – 1 ex., Herzeg-Novi (DEI).

Bulgaria – 1 ex., Ljulin planina, VI.1933 (cBor); 1 ex., Sofia, Knjačevo, 16.III.1909, leg. Rambousek (cBor); 11 exs., Pirin, Sandanski [1 ex. collected with light trap], 14.–17.VII.1985, leg. Pütz (cPüt, cWun, cAss); 1 ex., Sandanski, 6.–11.V.1984, leg. Wrase (cSch); 4 exs., Sandanski, 13.–24.VII.1985, leg. Schülke (cSch); 1 ex., coast of Black Sea, Ropotamo Nat. Park, 25.V.1988, leg. Pütz (cPüt); 11 exs., coast of Black Sea, Pomorie, 9.–18.V.1985, leg. Wrase (cSch, cAss); 6 exs., Pomorie, 25.V.1984, leg. Wrase (cSch); 2 exs., Pomorie, 9. and 24.V.1984, leg. Jaeger (MNHUB); 5 exs., coast of Black Sea, Koschariza, 8.V.1985, leg. Wrase (cSch, cAss); 1 ex., Burgas, V.1985, leg. Wrase (cSch); 1 ex., Vlas near Nesebâr, 17.–26.VII.1983, leg. Wrase & Schüler (cSch); 2 exs., same locality, V.1985, leg. Wrase (NHMW, cSch); 2 exs., Nesebâr, VI.1964, leg. Ermisch (NHMW, SMTD); 27 exs. [1 ex. teneral], Nesebâr, 20.VI.–6.VII.1965, leg. Ermisch (MNHUB, NHMW, SMTD, cAss); 1 ex., Sl. Brjag near Nesebâr, 7.V.1985, leg. Jaeger (MNHUB); 6 exs., 8 km NE Petrič, Koshuch, 10.VI.1983, leg. Hieke (MNHUB, cAss); 2 exs., Rupite [41°26N, 23°15E], IV.1984, leg. Hieke (MNHUB); 1 ex., Sozopol, 16.VIII.1971, leg. Uhlig (MNHUB); 1 ex., Sarafovo – Burgas, 8.V.1985, leg. Jaeger (MNHUB); 1 ex., Eminska Planina, Vlas, 12.V.1987, leg. Behne & Heinig (cSch); 3 exs., Chirpan, III.1941, leg. Schubert (NHMW); 1 ex., Vitoša, Kniazevo, 16.III.1909, leg. Rambousek (DEI).

Macedonia – 2 exs., Vardar plain, Salonich (DEI, MCSNM); 14 exs., Vardar plain, leg. Schatzmayr (NHMW); 1 ex., Utovo [41°11N, 21°12E], 1.V.1910, leg. Neuhaus (NHMB).

Albania – 2 exs., Djakova, 1916, leg. Csiki (HNHM); 1 ex., Rrushkull ["Ruskuli"], 23.IX.1918, leg. Priesner (NHMW); 2 exs., Shkodër, Bojana (MHNG, cAss); 2 exs., Vlorë ["Avlona"], leg. v. Oertzen (MNHUB); 1 ex., locality illegible (MCSNT).

Greece – Greece mainland: 3 exs., Parnássos (NHMW); 1 ex., Parnássos (cAss); 1 ex., Fthiotis, Atalándi, 21.V.1968, leg. SENGLET (MHNG); 1 ex., Férai, 3.V.1937, leg. BARTOŇ (cBor); 1 ex., Thessaloniki, 9.IV.1922, leg. LIEBMANN (DEI); 4 exs., Thessaloniki (DEI, MNHUB); 1 ex., NE Alexandroúpolis, Peplos, 19.VII.1963, leg. KORGE (cKor); 1 ex., Alexandroúpolis, VIII.1987, leg. WERNER (cSch); 1 ex., Athina, Phaleron [37°56N, 23°42E], leg. SCHATZMAYR (MCSNM); 15 exs., "Attica" (HNHM, IRSNB, MHNG, MNHUB, NHMW, SMTD); 2 exs., "Hellas" (NHMW); 1 ex., Kassandra, Polichoron, 20.III.1989, leg. ASSING (cAss); 1 ex., Serrai, Strimonas delta, 28.VIII.1998 (cAss); 1 ex., Évros Delta, VI.1977 (SMNS); 4 exs., Évros delta, Nomós Évros, *Salicornia*, 22.IV.1994, leg. SCHAWALLER (SMNS, cAss); 1 ex., Thrakia, Nomós Rodhópi, W Imeros port, 7 km SW Xilaganí, sandy beach, 24.IV.1994, leg. SCHMALFUSS (cAss). – Pelopónnisos: 1 ex., Ahaia, Kalogria, 23.VI.1998, leg. ANGELINI (cAng); 2 exs., Ástros (HNHM); 6 exs., Taygetos, leg. RAYMOND (DEI); 4 exs., locality not specified (DEI, NHMW). – Corfu: 5 exs., Val di Ropa, 1905, leg. LEONHARD (DEI); 4 exs., Val di Ropa (NHMW); 4 exs., "Lagune" (NHMW); 1 ex., Canone (NHMW); 29 exs., locality not specified (DEI, IRSNB, NHMW, SMTD). – Zákinthos: 1 ex., Kalamaki, 1909, leg. HILF (cKor); 15 exs., Limni Makry, 25.III.1936 (NHMW, cAss); 28 exs., Limni Makry, leg. HICKER (NHMW, cAss); 13 exs., locality not specified, IV.1909, leg. DORN (DEI, MNHUB); 3 exs., without further data (HNHM, cKor). – Kríti: 3 exs., Iraklion, IV.1906, leg. BIRÓ (HNHM, NHMW); 3 exs., Khania, II.1906, leg. BIRÓ (HNHM); 3 exs., E-Crete, Itanos, 19.III.1986, leg. MEYBOHM (cAss). – Samos: 1 ex., Psili Amos, 37°43N, 26°59E, 0–10 m, 17.–25.IV.2003, leg. MEYBOHM & BRACHAT (cAss). – Íos: 1 ex., Milopotamos Bay, 11.IV.1981, leg. SCHÖNMANN (NHMW). – Naxos: 2 exs., locality not specified (MNHUB, NHMW). – Limnos: 2 exs., N Koutali-Pedino, 17.V.1984, leg. SCHÖNMANN (NHMW). – Rhodos: 1 ex., Rhódos, leg. v. OERTZEN (MNHUB). – Locality not specified: 48 exs., leg. REITTER, etc. (DEI, HNHM, IRSNB, MHNG, MNHUB, NHMB, SMTD).

Cyprus – 1 ex., N-Cyprus, Famagusta ["Gazimagusa"], 11.IV.1992, leg. WINKELMANN-KLÖCK (cAss).

Turkey – Istanbul: 3 exs., Istanbul, 10.IV.1925, leg. BIRÓ (HNHM); 3 exs., Istanbul (MNHUB, NHMB, NHMW); 1 ex., Halkalı (MNHUB). – Bursa: 5 exs., Karacabey, leg. AJTAI (MHNG); 1 ex., Harat near Bursa (MNHUB). – Giresun: 1 ex., Alucra, 1400 m, 1.VI.1968, leg. KORGE (cKor). – Balıkesir: 1 ex., Manyas Gölü, 1.V.1954, leg. COIFFAIT (NHMW). – Eskişehir: 4 exs., Eskişehir, IV.1934 (MCSNM, NHMW); 1 ex., Mahmudiye, 15.IV.1930 (NHMW). – Ankara: 3 exs., Gölbaşı, 25.IV.1973, leg. HEINZ (cKor); 1 ex., 15 km S Şereflikoçhisar, 24.IV.1973, leg. HEINZ (cKor). – Izmir: 1 ex., Izmir (DEI). – Muğla: 16 exs. [all submacropterous], 25 km N Fethiye, 36°50N, 29°08E, 995 m, moist pasture, under stones, 27.III.2002, leg. ASSING (cAss); 1 ex., N Fethiye, Çaliş, 36°40N, 29°06E, 10 m, caught flying to light source, 1.X.2002, leg. ASSING (cAss); 1 ex., Fethiye, 36°37N, 29°07E, flying to light source, 7.VII.2002, leg. ASSING (cAss); 1 ex., Fethiye ["Makri"] (MHNG); 28 exs. [1 ex. teneral], 60 km NE Fethiye, Girdev Gölü, 36°42N, 29°38E, 1740 m, moist meadow, 3.X.2002, leg. ASSING (cAss). – Antalya: 6 exs., Elmalı, Avla Gölü, 28.IV.1973, leg. BRIGNOLI, RAO, VIGNA (cBor); 2 exs., S Elmalı, Camkuyusu, 36°34N, 29°58E, 1300 m, 25.IV.2001, leg. MEYBOHM (cAss); 8 exs., 2 km N Göltarla, 36°34N, 29°57E, 1070 m, lakeshore, 26.III.2001, leg. ROSE (cRos, cAss); 1 ex., 10 km N Akseki, 1350 m, under stones, 14.III.2000, leg. BELLMANN (cRos); 4 exs., 10 km N Akseki, 37°08N, 31°48E, 1260 m, under stones, 19.III.2002, leg. ROSE (cRos); 1 ex., Akseki, 16.III.2000, leg. ESSER (cEss); 1 ex., Belek (between Antalya and Side), 10 m, pitfall trap, XI.2001, leg. LUCKOW (cGol); 13 exs., Bakaran-Cevizli, 1400 m, 8.V.1978, leg. BESUCHET & LÖBL (MHNG, cAss). – Burdur: 2 exs., Burdur Gölü, Çerçin, 870 m, 6.V.1975, leg. BESUCHET & LÖBL (MHNG, cAss); 2 exs., 21 km SE Burdur, 1200 m, 5.V.1975, leg. BESUCHET & LÖBL (MHNG, cAss). – Isparta: 5 exs., Lake Beyşehir, Belgeyix, 19.IV.1973, leg. BRIGNOLI, RAO, VIGNA (cBor); 1 ex., N Lake Beyşehir, pasture, 14.V.2000, leg. MEYBOHM (cAss); 1 ex., Eğridir Gölü, 13.III.1979 (MHNG); 2 exs., Isparta-Dinar, pass, 14.III.1979 (MHNG, cAss); 1 ex., Isparta, V.1934, leg. NEUBERT (MCSNM). – Konya: 5 exs., Konya, 1899, leg. KORB (DEI, MNHUB); 7 exs., Lake Beyşehir, 21.IV.973, leg. BRIGNOLI, RAO, VIGNA (cBor); 1 ex., Beyşehir, pasture, 13.II.1979 (cAss); 5 exs., Bakaran, 1400 m, 7.V.1978, leg. BESUCHET & LÖBL (MHNG); 1 ex., Taşkent, Fasikan pass, 21.IV.2004, leg. ESSER (cEss). – Konya/Ankara/Aksaray: 4 exs., Tuz gölü, 21.IV.1987, leg. SZALLIES (cWun, cAss). – Samsun: 1 ex. [with light-coloured abdominal apex], Samsun-Bafra, 19.V.1967, leg. BESUCHET (cAss). – Sivas: 1 ex., E Sivas, Hafik, 8.VI.1968, leg. KORGE (cKor). – Adana: 3 exs. [with light-coloured abdominal apex], Ceyhan, 2.–24.V.1965, leg. SCHUBERT (NHMW,

cAss). – Çankırı: 1 ex. [with light-coloured abdominal apex], Inköy, 1300 m, leg. Osella (cBor). – Malatya: 2 exs., 75 km W Malatya, 18.V.1977, leg. D. Bernhauer (SMNS, cAss). – Adiyaman: 5 exs. [with light-coloured abdominal apex], Gölbaşi, 900 m, 10.V.1967, leg. Besuchet (cBor). – Gümüşhane: 1 ex., Erzincan – Kelkit, 2100 m, 4.VI.1986, leg. Besuchet, Löbl, Burckhardt (cAss). – Erzincan: 1 ex. [with light-coloured abdominal apex], Pülümür near Erzincan, 1700 m, 18.V.1964, leg. Korge (cKor). – Diyarbakır: 1 ex. [with light-coloured abdominal apex], Diyarbakır env., 850 m, at light, 8.VII.1974, leg. Heinz (cAss). – Erzurum: 1 ex., Erzurum, 1950 m, 19.VI.1968, leg. Brignoli (cBor). – Hakkari: 1 ex. [with light-coloured abdominal apex], Yüksekova, 3.–5.VI.1997, leg. Schillhammer & Schönmann (cAss). – Kayseri: 2 exs., Pazarören-Bünyan, 1400 m, 5.V.1978, leg. Besuchet & Löbl (cAss). – Van: 1 ex. [with light-coloured abdominal apex], 28 km SE Başkale, 1900 m, 20.V.1966 (NHMW); 1 ex., 20 km E Van, 20.V.1966 (cAss); 1 ex., Van, leg. Schatzmayr (MCSNM). – Locality not specified, not identified, or ambiguous: 30 exs., "Lyciae Taurus" (NHMW, cBor); 1 ex., "Pisid. Taurus, Mti. Dawras" (MCSNT); 1 ex., 14 km W Alaca, 12.IV.1979, leg. Heinz (cKor); 1 ex., Bozüyüle, Saraycik, 1000 m, 26.IV.1973, leg. Heinz (cKor); 1 ex., Karasu (SMNS).

Georgia – 3 exs., Tbilisi, 18.II.1879, 5.VII.1879, 24.VI.1880 (HNHM); 2 exs., Tbilisi, 6.V.1918, leg. Eichler (NHMB, SMTD); 2 exs., Tbilisi, Kumisi, 20.VI.1988, leg. Wrase (cSch); 3 exs., Kumisi, 29.VI. and 1.VII.1986, leg. Wrase & Schülke (cSch, cAss); 38 exs., Kumisi, VI.1987, leg. Wrase & Schülke (MNHUB, cSch, cAss).

Azerbaijan – 1 ex., Ordubad ["Araxesthal"] (NHMW); 2 exs., Baku, 14.IV.1929 and 27.IV.1931 (ZIN).

Armenia – 1 ex., Ecmiadzin, 9.III.1916, leg. Eichler (NHMB).

Ukraine – 2 exs., Bukovina, Nowoseliza, 20.VI.1918 and 5.VII.1918, leg. Springer (MCSNM, NHMB); 1 ex., Odessa, Belayewka, 5 km W Mayaki, at light source, 25.VII.1998, leg. Gontarenko (cAss); 1 ex., Odessa, 12.IV.1921 (ZIN); 2 exs., Odessa env., 2.IV.1921, leg. Znoyko (ZIN); 2 exs., Odessa, Xadzhibeysky lake, 7.V.1921 (ZIN); 1 ex., Odessa, Krivaya Balka, 4.III.1920, leg. Znoyko (ZIN); 3 exs., Mikolayiv region, Beresanka prov., Wassilewka, 8.VI.2003, leg. Gontarenko (cAss); 1 ex., Feodosia, leg. Retowski (NHMW); 2 exs., Crimea, Sevastopol, 15. and 27.III.1906, leg. Pliginski (ZIN); 10 exs., same data, but IV.1908 (ZIN); 2 exs., same data, but VII.1908 (ZIN); 4 exs., same data, but IV.1909 (ZIN); 3 exs., same data, but II.1910 (ZIN); 1 ex., same data, but IX.1910 (ZIN); 2 exs., same data, but XII.1910 (ZIN); 1 ex., Sevastopol, 6.IX.1920, leg. Kizeritsky (ZIN); 1 ex., Crimea, Eupatoria, 5.V.1906 (ZIN); 1 ex., Eupatoria (ZIN); 1 ex., Eupatoria, 5.V.1906, leg. Yakovlev (ZIN); 1 ex., Crimea, Kertsch, leg. Kirichenko (ZIN); 2 exs., Kertsch, 14.III.1911 (ZIN); 2 exs., Kertsch, 14.XI.1901 (ZIN); 1 ex., Crimea, Inkerman (?), 5.IV.1921, leg. Kizeritsky (ZIN); 1 ex., Crimea, "Agarmisch", 24.IV.1906 (ZIN); 1 ex., "Tauria", locality illegible, 30.VII.1887 (ZIN); 1 ex., "Starjy Kermentschik (Donez)", 15.X.1941, leg. Koch (NHMB); 2 exs., "Kamenko (Dnjepr) (Berislaw)", 4.X.1941, leg. Koch (NHMB); 1 ex., "Nikolajew, südl. Ukraine", 3.IX.1941, leg. Koch (NHMB).

Russia – 1 ex., Krasnodar, W Anapa, 25.VI.1953, leg. Arnoldi (ZIN); 1 ex., Krasnodar, 24.VI.1928, leg. Stepanov (ZIN); 5 exs., Wolgogradskaya Oblast, Krasnoarmeysk ["Sarepta", 48°32N, 44°36E] (DEI, IRSNB, NHMW, ZIN, cAss); 2 exs., Astrakhan (ZIN); 2 exs., Ural, "Temir, Dzhuruck", 13.IV.1908, leg. Borodin & Uvarov (ZIN).

Syria – 1 ex. [with light-coloured abdominal apex], Hama, 1.VI.1980, leg. Mühle (MNHUB); 1 ex. [with light-coloured abdominal apex], "Midjaneh" (IRSNB).

Israel – 6 exs. [with light-coloured abdominal apex], Haifa, leg. Simon (NHMW, cAss).

Iran – 1 ex. [with light-coloured abdominal apex], Shādegān (cAss); 1 ex. [with dark abdominal apex], Shādegān, 1.–8.III.1956, leg. Richter (SMNS); 2 exs., Shiraz [= Schiras], 15.V.1964, leg. Perissinotto & Rigatti (MCSNM, cAss); 1 ex., "Persia merid." (IRSNB).

Turkmenistan – 4 exs., Mary ["Merw"], IV.1900, leg. Hauser (NHMB, NHMW, cAss); 3 exs., "Dort-kuju" [ca. 37°37N, 61°14E], IV.1900, leg. Hauser (DEI, cAss); 4 exs., same data, but V.1900 (NHMW, cAss); 1 ex., Aschchabad ["Askabad"], leg. Reitter (HNHM); 3 exs., Tedshen ["Tedzen"], 12.–26.III.1992, leg. Snižek (NHMW, cAss); 1 ex., Tedshen (NHMW); 1 ex., Loṭfābād (NHMW); 2 exs., Imambaba (NHMW).

Uzbekistan – 3 exs., Margelan, leg. Staudinger (NHMW, cAss); 1 ex., Turkestan (IRSNB); 2 exs., Syrdarja region, "Dshulek" (NHMW, cAss); 1 ex., Evalak (ZIN).

Tajikistan – 1 ex., Ura-tjube, Serafshan, 600–900 m, 20.VI.–10.VII.1987, leg. Muche (cAss).

Locality not specified, illegible, ambiguous, or not identified – 17 exs., Caucasus region (HNHM, IRSNB, NHMW, SMNS, ZIN); 1 ex., "Caucase, Goek-Tepe" (DEI); 14 exs., "Geox Tapa", leg. MESMIN (IRSNB); 5 exs., "Caucasus, Aresch" (IRSNB); 2 exs., "Rustschuk", leg. VERHOEFF (MNHUB); 94 exs. (IRSNB, MCSNM, MCSNT, MHNG, MNHUB, NHMB, NHMW, SMTD, ZIN, cKor); 1 ex., "Lacs" (MHNG); 1 ex., "Kilia", 16.V.1911, leg. CHERNAVIN (ZIN); 3 exs., "Imola" (MNHUB, ZIN); 2 exs. [with light-coloured abdominal apex], "Hidjaneh" (NHMW); 3 exs., "Transcasp.", leg. ARIS (MNHUB); 4 exs., "Transcaspia, Neu-Saratow" (MNHUB, NHMW, cAss).

Comments

The original description of *L. gracile* is based on an unspecified number of syntypes from "Lusitania" (= Portugal), two of which were found in the collections of the MNHUB. One of them is here designated as the lectotype in order to stabilise the name.

All that REITTER (1902) mentions about the distribution (and types) of *Dolicaon biguttulus* v. *analis* in the original description is "meist aus dem Kaukasus stammend". The only specimen in the REITTER collection that is from the Caucasus region and that fits the original description is the specimen listed above as the lectotype, which is here designated to stabilise the present interpretation of the name. A comparative examination of numerous specimens with and without light-coloured abdominal apex yielded no evidence that the latter should represent a distinct species. No constant differences were found in the male secondary sexual characters and in the shape of the aedeagus, which is not only very variable in either of the two fractions, but also shows considerable overlap. Regarding the coloration, transitional conditions were seen in material from Georgia and Cyprus. Therefore, the lighter coloration of the type of *Dolicaon analis* Reitter and of other specimens seen from the Eastern Mediterranean is here interpreted as an expression of intraspecific variation and the name is here synonymised with *L. gracile*.

The original description of *Dolicaon winkleri*, which has been regarded as a synonym of *L. anale* (Reitter) by most previous authors, is based on 20 syntypes from Adana, six of which were found in the collections of the NHMB and NHMW. According to KOCH (1937a), they were collected by WINKLER, but the collector's name indicated on the labels attached to the syntypes is NEUBERT. The remaining data, however, are in full agreement, so that there is no doubt that the said specimens really have type status. In coloration and other external characters they are highly similar to the lectotype of *L. anale* and within the range of intraspecific variation of *L. gracile*. The same is true of the male sexual characters, so that *D. winkleri* is here synonymised with *L. gracile*. In order to secure the present interpretation and synonymy – not all the types were located – a male in good condition from the FREY collection (NHMB) is here designated as the lectotype.

The types of *L. piochardi* are at the lower end of the size range of *L. gracile*. Also, the yellow spots on the elytra are more extensive, and the apex of the abdomen (posterior half of segment VII and segments VIII–X) are rufous. However, the coloration is variable even in the two type specimens examined: in the holotype, the posterior half of the elytra is yellowish, whereas in the paratype the posterior two thirds are light-coloured. Moreover, regarding the male sexual characters as well as other external characters, the types were found to be within the range of intraspecific variation. Clinal variation of the coloration is a common phenomenon in many Staphylinidae, also in many Paederinae; an extreme example from the Eastern

Mediterranean and the Middle East is *Medon semiobscurus* (Fauvel) (ASSING 2004). Therefore, the different coloration is here interpreted as an expression of clinal intraspecific rather than interspecific variation and *L. piochardi* is placed in the synonymy of *L. gracile*.

An examination of the holotype of *L. obenbergeri* revealed no characters outside the range of intraspecific variation of *L. gracile*; hence the synonymy indicated above. As can be inferred from the label attached to the specimen, the synonymy with *L. gracile* was recognised also by V. GUSAROV, but apparently not published.

The original description of *D. haemorrhous* Erichson is based on an unspecified number of syntypes from Sardinia and Sicily. Based on an examination of numerous specimens from the whole range of *L. gracile*, the coloration pattern of this morph is interpreted as an expression of intraspecific clinal variation. Since the aedeagal morphology, too, is linked to that of other populations of *L. gracile* by every possible transition, *D. haemorrhous* is here placed in the synonymy of *D. gracile*.

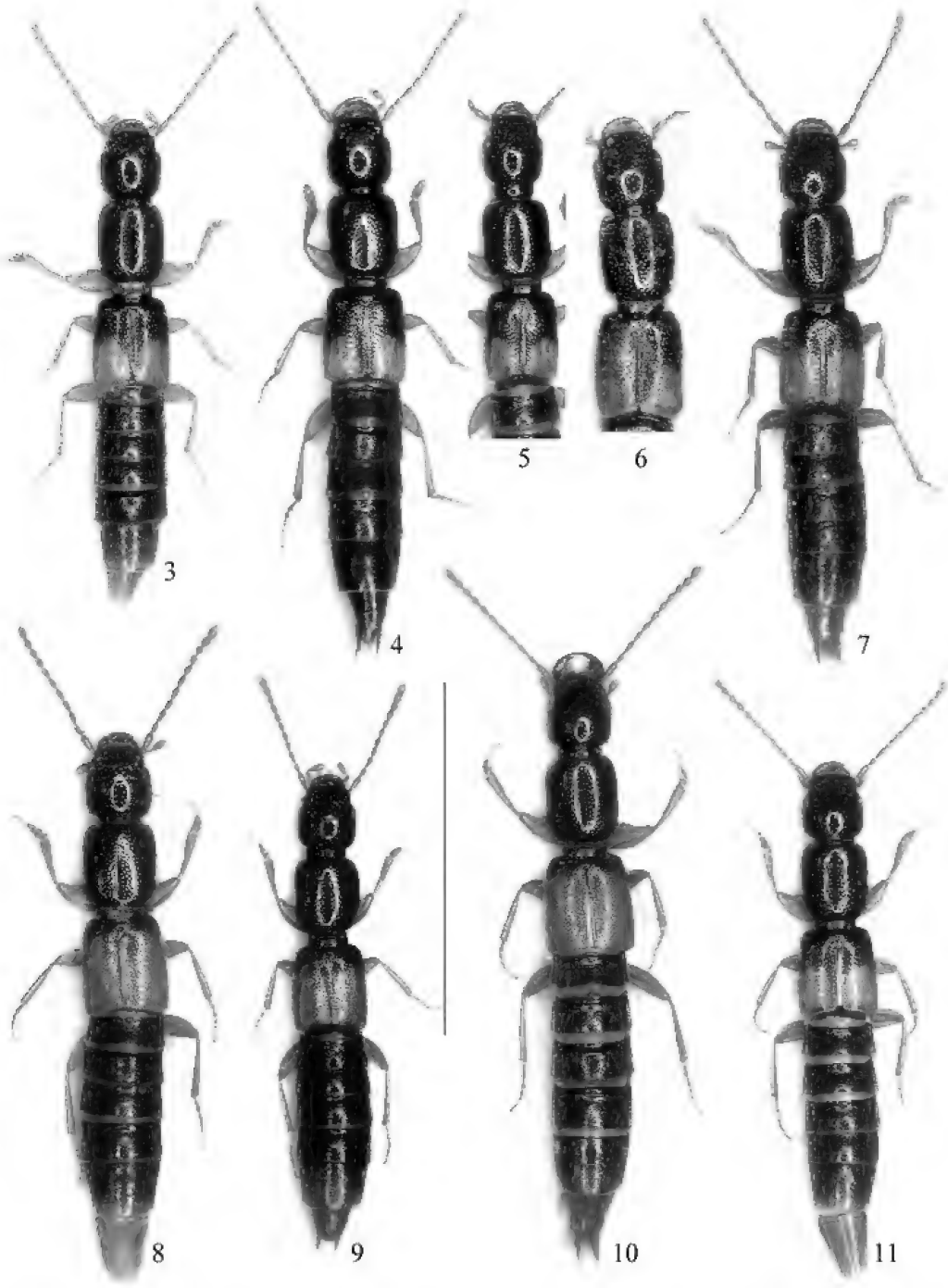
According to the original description, which is based on a large number of syntypes from Sidi Ali, *D. haemorrhous cedri* is distinguished from *L. haemorrhoum* by smaller body size, shorter elytra, and more extensive black markings on the elytra. However, these differences do not coincide with a particular distribution pattern; specimens similar to the types both in coloration and morphology were found also in populations from other regions (N-Africa, Sicily, Sardinia), so that the mentioned differences must be interpreted as an expression of normal intraspecific – and not of intersubspecific – variation. Similarly, the differences indicated in the original description of *Dolicaon berberus* Koch (body large, elytra long, large, and anteriorly only weakly infuscated) were found to be within the range of intraspecific variation of *L. gracile*. Consequently, both *D. haemorrhous cedri* Koch and *D. berberus* Koch are here synonymised.

According to FAGEL (1958), the types of *Leptobium duplicatum*, a name with a vague type locality ("Abyssinie"), are in the FAUVEL collection at the IRSNB. They were looked for, but not found by the curator in charge (DRUGMAND, pers. comm., 13 October 2004). Based on the illustration of the aedeagus and the descriptive details (coloration, long wings, etc.) indicated in the original description, it would be within the range of intraspecific variation of *L. gracile*. Besides, it is evidently not closely related to the geographically closest congeners, *L. arabicum* and *L. yemenicum*. For these reasons, *L. duplicatum* is here presumed to be synonymic with *L. gracile*.

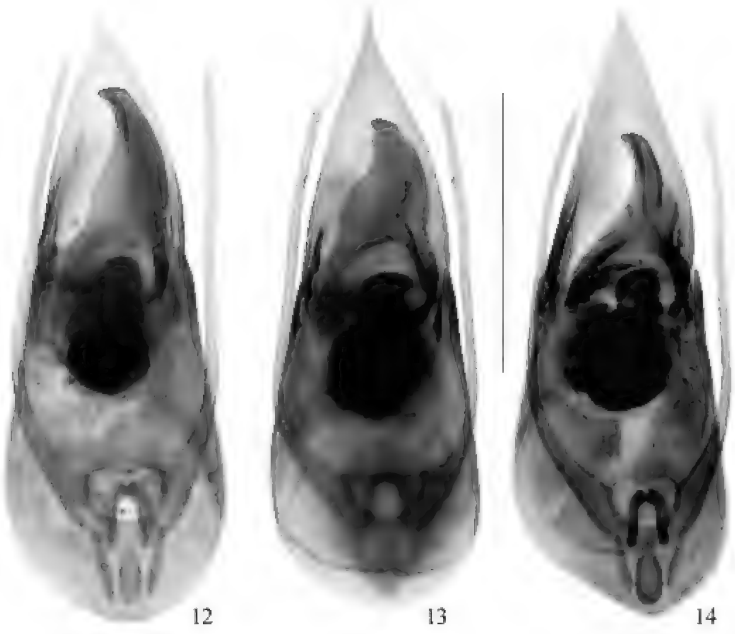
Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 243): HL: 0.70–0.93, 0.82; HW: 0.62–0.87, 0.75; PW: 0.68–0.99, 0.83; PL: 0.78–1.09, 0.95; EL: 0.64–1.03, 0.85; TiL: 0.58–0.84, 0.71; TaL: 0.52–0.91, 0.66; AL: 0.91–1.22, 1.02; TL: 4.6–7.3, 5.9; HL/HW: 1.02–1.18, 1.10; PW/HW: 1.05–1.20, 1.11; PL/PW: 1.10–1.24, 1.16; EL/PL: 0.74–1.10, 0.90; TiL/TaL: 0.82–1.21, 1.08.

Extremely variable species (Figs. 3–11). Usual coloration: body blackish; elytra each with large, bright yellow spot of somewhat variable size posteriorly, this spot usually not reaching suture; legs and antennae testaceous. More rarely, the yellow spots on the elytra may be dark yellow or orange or reddish, or they may be very large, confluent across suture, and/or occupy more than half of the elytra; in some populations especially from North Africa, the Western Iberian peninsula, Sicily, Sar-



Figs. 3–11. *Leptobium gracile* (Gravenhorst), habitus. – **3**. Eastern Anatolia. – **4**. SW-Turkey (macropterous). – **5**. SW-Turkey (submacropterous). – **6**. Iran. – **7**. Siberia. – **8**. Middle Asia. – **9**. Sardinia. – **10**. Middle Asia. – **11**. Israel. – Scale bar: 5 mm.



Figs. 12–14. *Leptobium gracile* (Gravenhorst), basic aedeagal morphs. – **12.** Lectotype. – **13.** Middle Asia. – **14.** Iran. – Scale bar: 0.5 mm.

dinia, and Central Asia, the elytra may be rufous with the anterior $^1/_6$ to $^1/_3$ blackish; also, the apex of the abdomen (segment VII and following segments) may be more or less rufous.

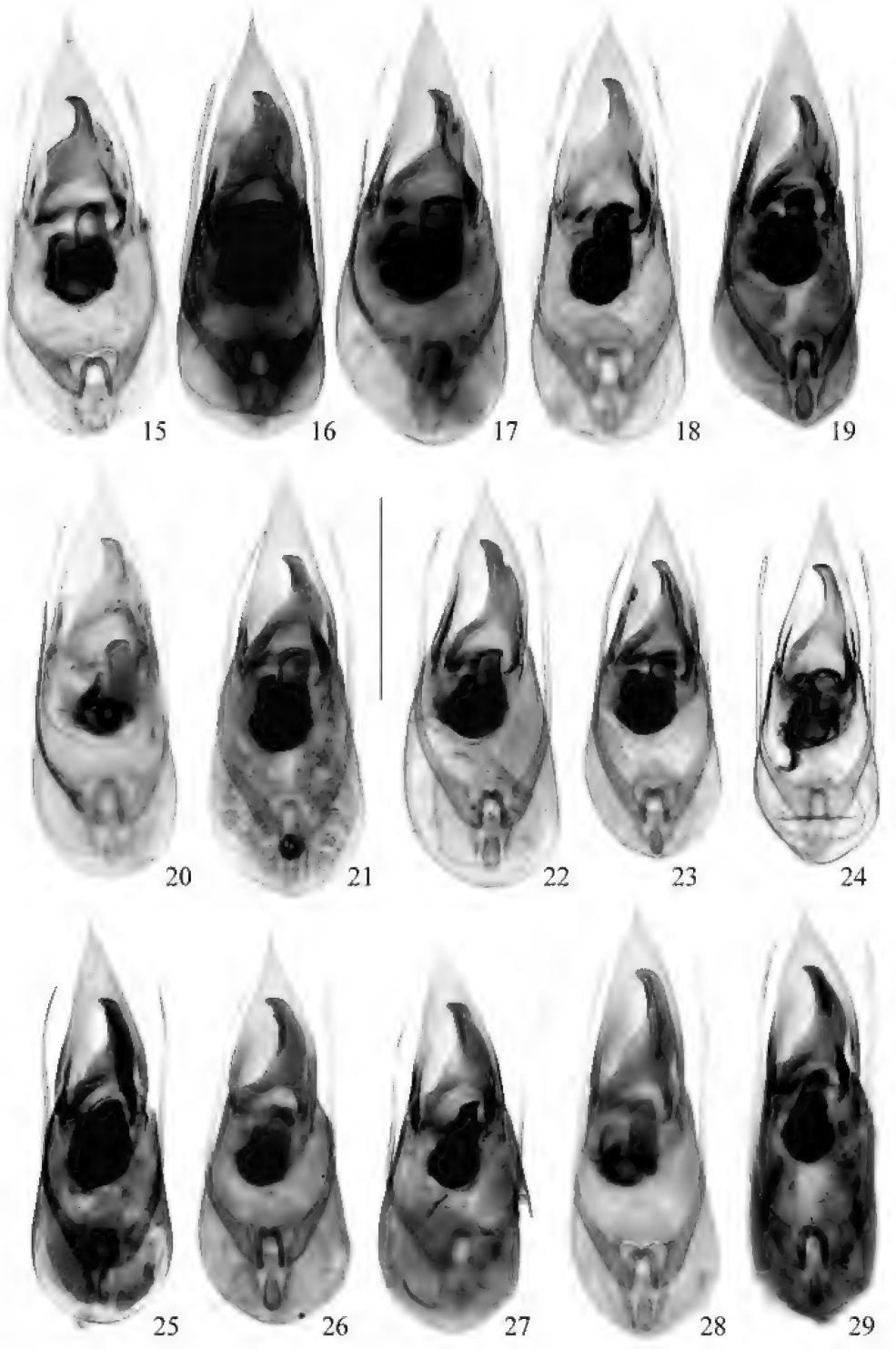
Head more or less distinctly oblong (see ratio HL/HW); eyes of variable size, 0.55–0.8 times the length of postocular region in dorsal view; puncturation variable, relatively coarse and dense, with the interstices on average as wide as punctures, to sparse and moderately fine, with the interstices on average about twice as wide as punctures or even wider. Antennae slender; antennomere III usually 2.5–3 times as long as wide and almost 1.5 times as long as II.

Pronotum more or less distinctly oblong and wider than head (see ratios PL/PW and PW/HW); puncturation similar to that of head, but usually much denser; midline impunctate; microsculpture absent.

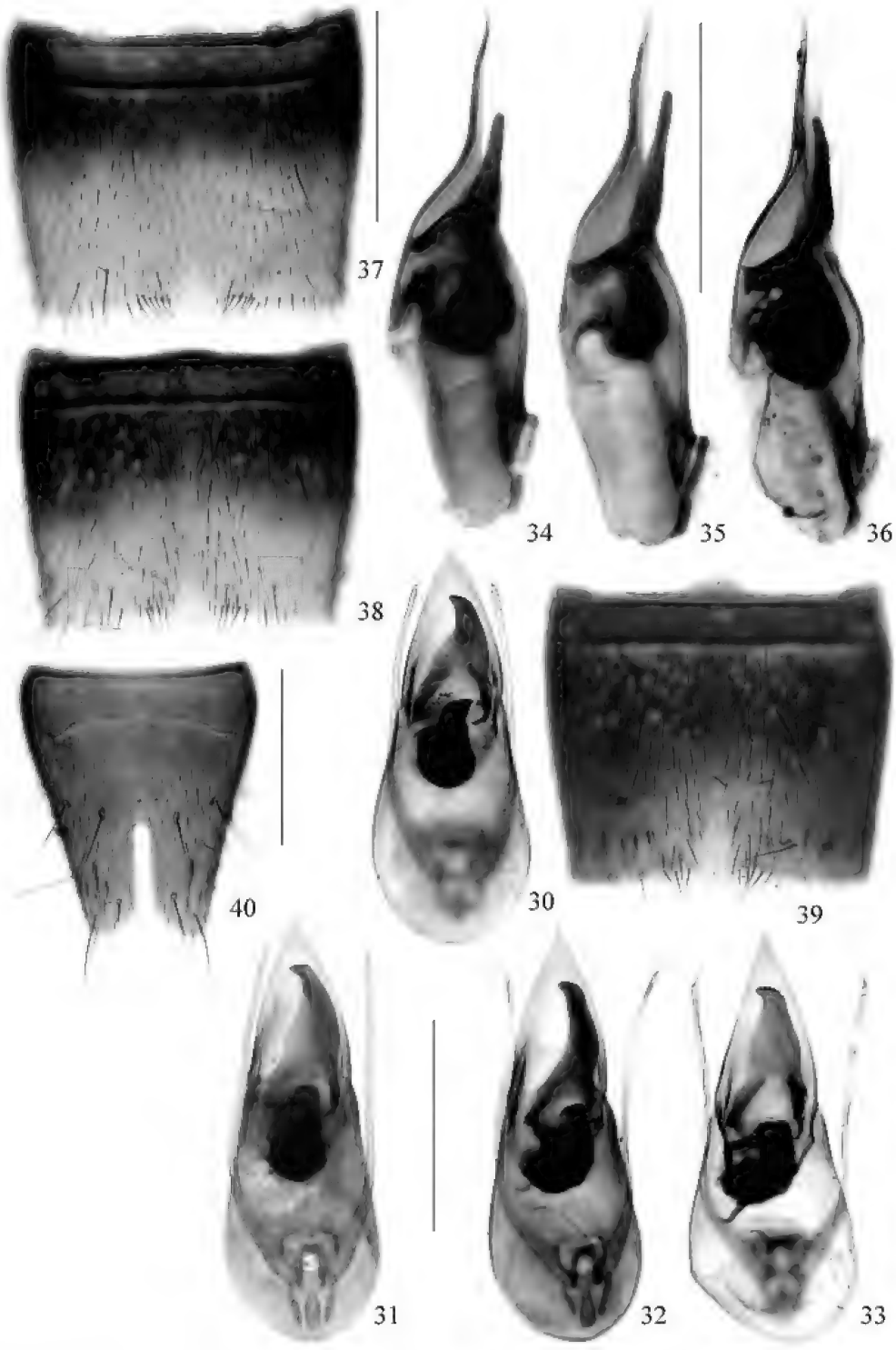
Elytra of very variable size, polymorphic, somewhat wider than pronotum; relative and absolute length very variable (see ratio EL/PL and Figs. 3–11). Puncturation usually denser and less well-defined than that of pronotum. Hind wings dimorphic, macropterous or submacropterous. Legs relatively slender with rather long tarsi, metatarsus as long as metatibia or slightly shorter.

Abdomen subparallel, in macropterous specimens usually distinctly narrower (0.8–0.9 ×) than elytra, in submacropterous specimens sometimes almost as wide as elytra; puncturation variable, usually fine and moderately dense; puncturation of tergite VII slightly sparser and finer than that of anterior tergites; puncturation of tergite VIII even sparser and finer; posterior margin of tergite VII with palisade fringe.

♂: sternite VII with truncate to weakly concave and in the middle more or less distinctly convex posterior margin, in posterior median area with small oblong and more or less transparent area of variable size and shape without pubescence, on ei-



Figs. 15–29. *Leptobium gracile* (Gravenhorst), intraspecific variation of aedeagus. – **15–16, 18, 20**. Middle Asia. – **17, 19**. Iran. – **21, 25**. Caucasus. – **22**. Ukraine. – **23**. Israel. – **24**. E-Turkey. – **26**. S-Italy. – **27**. Siberia. – **28**. Spain. – **29**. Morocco. – Scale bar: 0.5 mm.



Figs. 30–40. *Leptobium gracile* (Gravenhorst). – **30–33**. Aedeagus in ventral view (30: SW-Turkey; 31: lectotype of *L. gracile*; 32–33: Algeria). – **34–36**. Aedeagus in lateral view (34: Caucasus; 35: Spain; 36: Middle Asia). – **37–39**. Male sternite VII (37: Caucasus; 38: Iran; 39: Spain). – **40**. Male sternite VIII. – Scale bar: 0.5 mm.

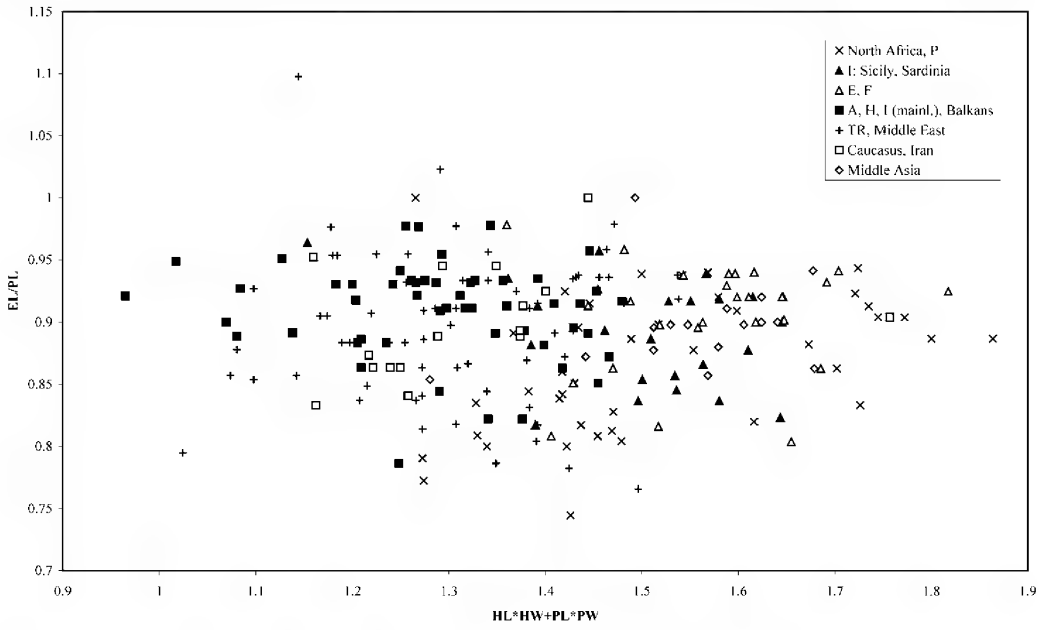


Fig. 41. *Leptobium gracile* (Gravenhorst). Relative elytral length (EL/PL) in relation to body size [given as the sum of approximated head size (HL×HW) and pronotum size (PL×PW)]. – Abbreviations: P = Portugal; E = Spain; F = France; I = Italy; mainl. = mainland; A = Austria; H = Hungary; TR = Turkey; further abbreviations see chapter 2.

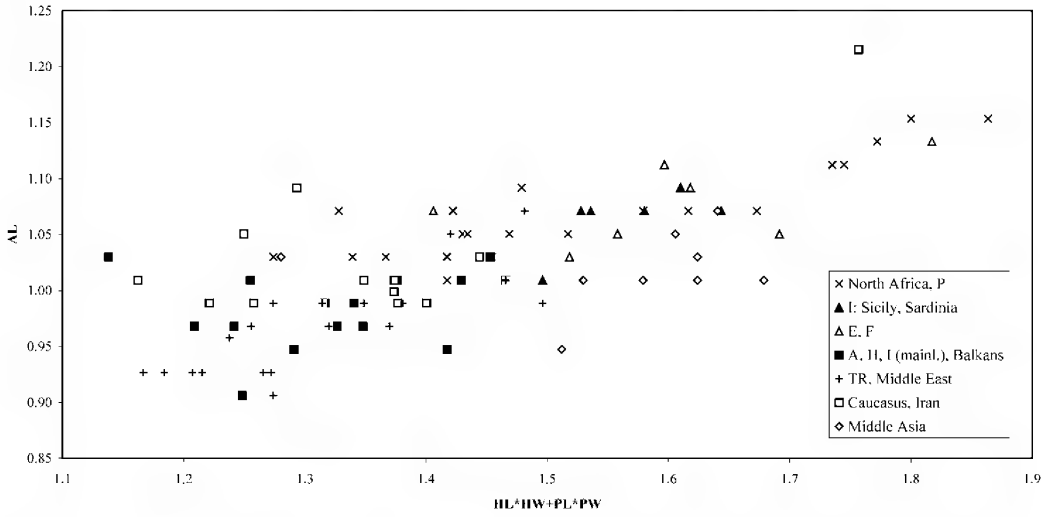


Fig. 42. *Leptobium gracile* (Gravenhorst). Aedeagus length (AL) in relation to body size [given as the sum of approximated head size (HL×HW) and pronotum size (PL×PW)]. – Abbreviations see Fig. 41.

ther side of this area with group of relatively stout and not very dense dark setae directed diagonally medio-caudad (Figs. 37–39); sternite VIII slender, posterior incision not reaching middle (Fig. 40); aedeagus, especially ventral process, of extremely variable shape (Figs. 12–36).

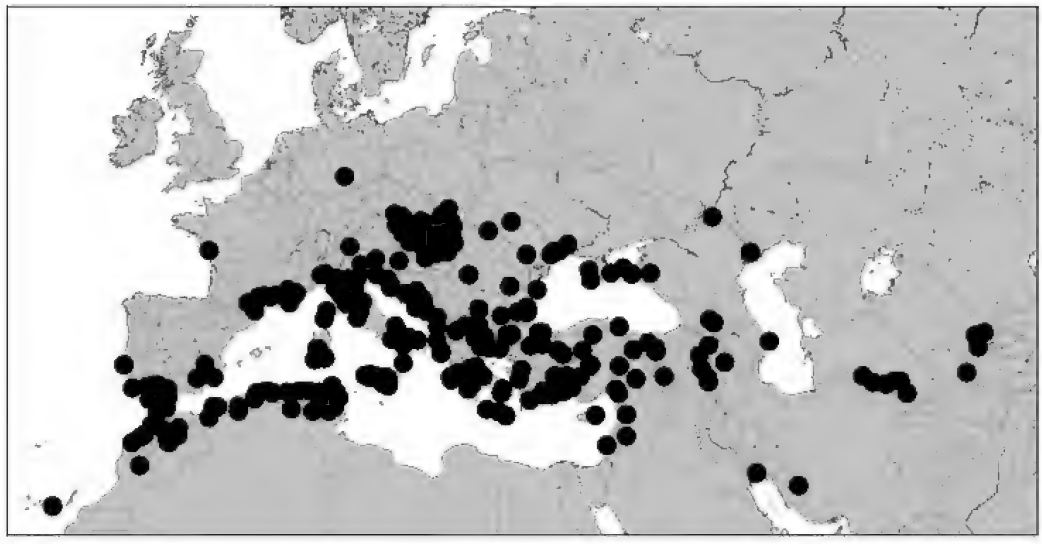


Fig. 43. Distribution of *Leptobium gracile* (Gravenhorst) based on revised records.

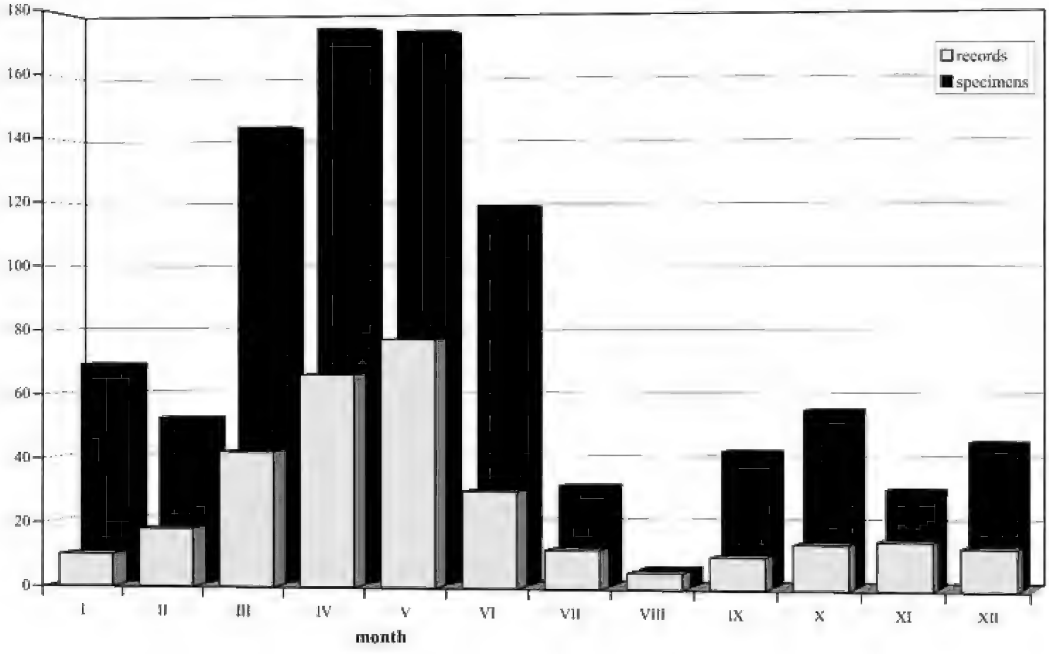


Fig. 44. *Leptobium gracile* (Gravenhorst). Seasonal distribution of the examined specimens (black bars) and samples/records (grey bars).

Intraspecific variation

Max/min ratios: HL: 1.32; HW: 1.40; PW: 1.45; PL: 1.39; EL: 1.61; TiL: 1.46; TaL: 1.76; AL: 1.34; HL/HW: 1.15; PW/HW: 1.14; PL/PW: 1.12; EL/PL: 1.47; TiL/TaL: 1.47.

As emphasised in the description above, virtually all characters are subject to pronounced intraspecific variation; this particularly applies to the coloration, size,

puncturation, eye size, relative size and shape of the elytra, and the shape of the ventral process of the aedeagus (see ratios above).

In the material examined, the largest specimens were from North Africa, the Iberian peninsula, and Iran, whereas the smallest beetles were collected in the Balkans and the Middle East (Fig. 41). The relative length of the elytra is highly variable everywhere, which is not surprising in view of the observed hind wing polymorphism. Size variation of the aedeagus is pronounced and mostly allometric. The largest aedeagi were observed in males from Iran, North Africa, and the Iberian peninsula, the smallest in males from the Balkans, Turkey, and the Middle East (Fig. 42). The shape of the ventral process of the aedeagus is subject to enormous variation: it may be wide and short, occasionally with a separate process on the right (ventral view) or it may be small and slender. These extreme character states are linked by every possible transition (Figs. 12–36).

Light-coloured specimens with large elytral spots and a rufous abdominal apex were seen from the Caucasus region and from the Eastern Mediterranean (Eastern Turkey, Cyprus, Georgia, Middle East); specimens with an extensively reddish coloration of the elytra and light coloured abdomen, a morph previously referred to as *L. haemorrhoum*, occur in North Africa, the southwestern Iberian peninsula, Sicily, Sardinia, and Middle Asia; specimens with very small, almost completely reduced elytral spots are very rare and were seen especially in material from the Balkans. In the vast majority of specimens, the abdominal apex is more or less uniformly dark brown to blackish; occasionally, it may be light brown to rufous to various extents. More rarely, the apex is distinctly bicoloured, with the rufous apex including the posterior half or even all of segment VII and sharply contrasting with the anterior parts of the abdomen. Practically all combinations of colour patterns were observed and they are linked by transitional conditions (Figs. 3–11). A specimen examined from Iran even has an asymmetrical coloration of the elytra, i. e. the left elytron is almost completely yellowish with the anterior margin infuscate and the right elytron has a well defined yellow spot in the posterior half (Fig. 6). Remarkably, in larger samples taken in the same locality, i. e. from the same local population, the specimens are usually rather similar both in the shape of the aedeagus and in the coloration. The differences between local populations, in contrast, even if separated only by a short distance, may be pronounced. Since the various character constellations are all linked by transitional conditions and the various coloration patterns do not coincide with a particular shape of the aedeagus, they are here interpreted as an expression of intra- rather than interspecific variation.

Comparative notes

The species is distinguished from all its congeners by the coloration and by the morphology of the aedeagus. The only species of similar coloration is *L. dimidiatum* (Gridelli). In the collections examined, the species was often confused with *Tetartopeus terminatus* (Gravenhorst).

Distribution and bionomics

Leptobium gracile is the most widespread species of the genus, its distribution ranging from the Canary Islands and southwestern Morocco in the west to Middle Asia in the east (Fig. 43). The records furthest to the southeast are from southern Iran, but if the types of *L. duplicatum* should be found some day and indeed turn out

to be conspecific with *L. gracile*, as is assumed above, the range of *L. gracile* even reaches into the northeastern parts of the Ethiopian region. The northern limit of the distribution intersects France. In Germany, only a few old records are known from the west and southwest. According to HORION (1965), the record from Thüringen (see material above) is doubtful, but another old record from Sömmerda was only recently reported by KOPETZ et al. (2004). For additional records see CONTARINI (1988), CONTARINI et al. (1983), FOCARILE (1964), JANÁK (1992), NETOLITZKY (1912), NOVAK (1952), RAMBOUSEK (1910), SCHEERPELTZ (1957, 1961, 1964, 1968), SMETANA (1959), SOLODOVNIKOV (1998b), ŠUSTEK (1995), SZUJECKI (1995), and TRONQUET (2001).

The species is wing-dimorphic or wing-polymorphic, and at least part of the macropterous specimens are capable of flight, as is shown by several records of flying beetles in July and October; an additional car-net record in July (Hungary) is reported by RENNER (2002). However, the fact that intraspecific variation is low within subpopulations, but may be pronounced even between neighbouring subpopulations, indicates a low rate of gene flow and suggests that horizontal dispersal may be confined to only a small fraction of the populations.

Leptobium gracile occurs in various types of – usually unforested – biotopes, especially in moist grassland (near edges of running or standing water, arable land, swamps, etc.), often in areas with brackish soils, and has even been found on a sandy beach. On various occasions, it was collected in larger numbers in flood debris in spring and winter. The species has been recorded from a wide range of altitudes, from sea-level up to 2100 m. Teneral specimens were observed in April–July and in September–October. Adult beetles have been collected throughout the year, but most records and specimens are from the spring months (March through June, with a maximum in April and May) and from autumn; records from August are very scarce (Fig. 44). Near Tbilisi (Georgia), *L. gracile* was found together with the closely related *L. dimidiatum*.

3.3 *Leptobium rubripenne* (Reitter, 1891) (Figs. 45–49)

Dolicaon rubripennis; REITTER (1891: 138f.).

Types examined

Lectotype ♂, present designation: Turcmenien, REITTER. LEDER / Syr Darja WILLBERG / coll. REITTER / Paratypus [sic] *Dolicaon rubripennis* Reitter / *Leptobium rubripenne* (Reitt.), GUSAROV det. 1991 / Lectotypus *Dolicaon rubripennis* Reitter desig. V. ASSING 2003 (HNHM). – Paralectotypes: 2 ♂♂, 5 ♀♀: same data as lectotype [1 ♂ labelled "Holotypus ..."] (HNHM).

Comment

The original description is based on an unspecified number of syntypes from "Syr-Darja, in Ost-Turkmenien, von Herrn EUG. WILLBERG gesammelt".

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 8): HL: 0.89–0.97, 0.93; HW: 0.80–0.87, 0.84; PW: 0.87–0.95, 0.90; PL: 0.99–1.13, 1.07; EL: 0.82–0.97, 0.90; TiL: 0.72–0.82, 0.76; TaL: 0.66–0.72, 0.68; AL: 1.13–1.17, 1.15; TL: 5.5–7.7, 6.6; HL/HW: 1.10–1.15, 1.12; PW/HW: 1.05–1.10, 1.08; PL/PW: 1.14–1.21, 1.19; EL/PL: 0.82–0.87, 0.84; TiL/TaL: 1.03–1.22, 1.11.

Figs. 45–49. *Leptobium rubripenne* (Reitter). – **45.** Habitus (lectotype). – **46–47.** Aedeagus in ventral and in lateral view. – **48.** Male sternite VII. – **49.** Male sternite VIII. – Scale bars: 5 mm (45), 0.5 mm (46–49).

Habitus as in Fig. 45. Head, pronotum, abdominal segments III–VI, and anterior $^2/_3$–$^3/_4$ of segment VII blackish brown to blackish; elytra (sometimes except for the weakly infuscate area near the scutellum) and abdominal apex rufous; legs and antennae testaceous.

Head weakly oblong (see ratio HL/HW); eyes moderately large, postocular region about twice as long as eyes in dorsal view; puncturation moderately sparse and moderately coarse, interstices on dorsal surface on average about 1–2 times as wide as diameter of punctures; microsculpture absent. Antennae moderately long and slender; antennomere III slightly longer than II, VI about 1.5 times as long as wide.

Pronotum moderately oblong and about as wide as head (see ratios PL/PW and PW/HW); puncturation similar to that of head, but slightly denser; microsculpture absent.

Elytra about 1.15 times as wide as pronotum, relatively long (see ratio EL/PL), and about 1.1 times as wide as abdomen; puncturation much finer, shallower, and less well-defined than that of pronotum. Hind wings present. Legs of similar morphology as in *L. gracile*.

Abdomen subparallel, narrower than elytra; puncturation of segments III–VI rather dense and fine, on posterior segments much sparser; microsculpture dense and fine, composed predominantly of transverse striae; posterior margin of tergite VII with palisade fringe.

♂: sternite VII in posterior median area with small depression of triangular shape and without pubescence (Fig. 48); sternite VIII with posterior incision not reaching middle (Fig. 49); aedeagus of similar morphology as in *L. dimidiatum* and *L. gracile*, but with ventral process of different shape (Figs. 46, 47).

Comparative notes and intraspecific variation

The species is distinguished from its congeners especially by the morphology of its aedeagus, from the similar and closely related *L. gracile* and *L. dimidiatum* also as follows: from *L. gracile* by greater average size and by more extensively reddish elytra than is on average the case in *L. gracile*; from *L. dimidiatum* by the almost uniformly reddish elytra and the absence of a pair of distinct clusters of modified setae at the posterior margin of the male sternite VII.

If *L. rubripenne* really represents a distinct species or if it is only another extreme morph of *L. gracile* can only be clarified when more material becomes available from Middle Asia.

Distribution and bionomics

The species has been recorded only from Uzbekistan (type locality: Syrdarja). Bionomic data are unknown.

3.4 *Leptobium dimidiatum* (Gridelli, 1926) (Figs. 50–58)

Dolicaon dimidiatus; GRIDELLI (1926: 151 ff.).
Leptobium reitteri; COIFFAIT (1969: 852, 867), **n. syn.**

Types examined

D. dimidiatus: Syntypes: 2 ♂♂: Roumanie, Comana Vlasca [= Comana, Giurgiu], A. L. MONTANDON / Typus / *Dolicaon dimidiatus* Grid. / Collez. A. DODERO / *Leptobium dimidiatum* (Grid.) V. I. GUSAROV det. 1993 / *Leptobium dimidiatum* (Gridelli) det. V. ASSING 2003 (MCSNG).

L. reitteri: Holotype ♂: Turkmenia, Askabad [= Ashkhabad] / *Dolicaon bigutt.* ab. *analis* Reitt. Coll. REITTER / Type / *Leptobium reitteri* Coiff. H. COIFFAIT det. 1968 / *Leptobium dimidiatum* (Gridelli) det. V. ASSING 2003 (HNHM). – Paratype ♀: same data as holotype (HNHM).

Additional material examined (total, including types: 16 exs.)

Georgia – 9 exs., Tbilisi, Kumisi, 8.–24.VI.1987, leg. WRASE & SCHÜLKE (MNHUB, cSch, cAss); 2 exs., same data, but 29.VI.–1.VII.1986 (cSch). – Locality not specified: 1 ex., "Caucasus", leg. LEDER & REITTER (HNHM).

Comments

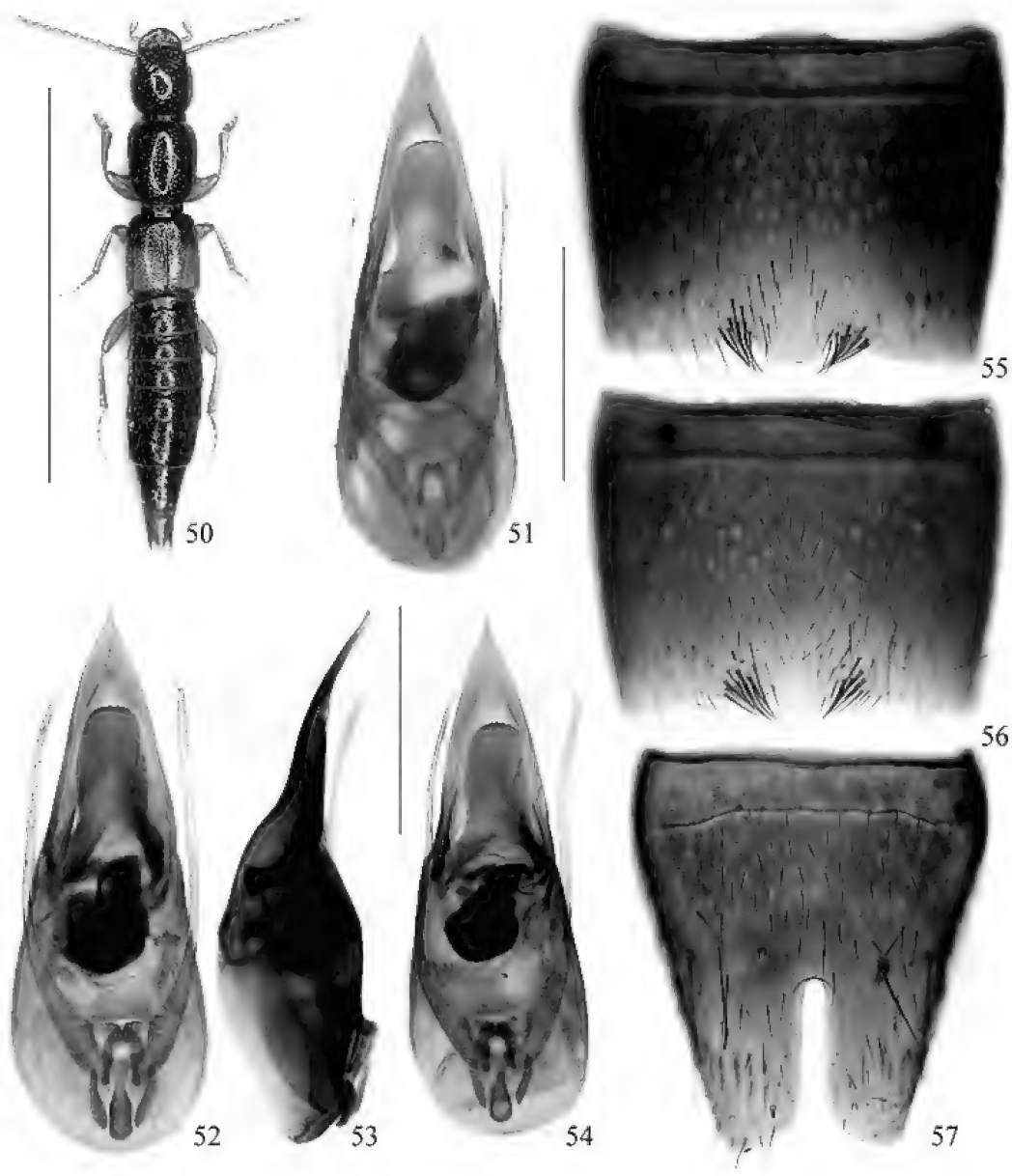
The original description of *L. dimidiatum* is based on "due esemplari ♂♂, raccolti da A. L. MONTANDON (collez. DODERO)" (GRIDELLI 1926). Both males are attached to the same pin and doubtlessly conspecific, so that a lectotype designation is not necessary.

Both type specimens of *L. reitteri* were found in the collections of the HNHM. They are conspecific with the types of *L. dimidiatum*, so that *L. reitteri* is here placed in the synonymy of that name.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 16): HL: 0.78–0.95, 0.88; HW: 0.70–0.84, 0.80; PW: 0.78–0.93, 0.87; PL: 0.91–1.07, 1.02; EL: 0.70–0.89, 0.83; TiL: 0.68–0.78, 0.74; TaL: 0.62–0.74, 0.68; AL: 1.13–1.26, 1.19; TL: 5.1–6.8, 6.1; HL/HW: 1.06–1.15, 1.10; PW/HW: 1.05–1.13, 1.08; PL/PW: 1.14–1.21, 1.18; EL/PL: 0.74–0.91, 0.81; TiL/TaL: 1.03–1.15, 1.09.

Habitus as in Fig. 50. Head, pronotum, anterior third of elytra, abdominal segments III–VII, and anterior part of segment VIII blackish; posterior two thirds of



Figs. 50–57. *Leptobium dimidiatum* (Reitter). – **50.** Habitus. – **51–54.** Aedeagus in ventral and in lateral view (51: syntype of *L. dimidiatum*; 52–53: male from Tbilisi; 54: holotype of *L. reitteri*). – **55–56.** Male sternite VII (55: male from Tbilisi; 56: holotype of *L. reitteri*). – **57.** Male sternite VIII. – Scale bars: 5 mm (50), 0.5 mm (51–57).

elytra, posterior margin of abdominal segment VII, and apex of segment VIII rufous; legs and antennae reddish yellow.

Head moderately oblong (see ratio HL/HW); eyes moderately large, approximately half as long as postocular region in dorsal view; puncturation moderately sparse and moderately coarse, interstices in median area of dorsal surface on average about 2–3 times as wide as diameter of punctures; microsculpture absent. Antennae moderately long and slender; antennomere III longer (but less than 1.5 ×) than II, VI about 1.5 times as long as wide.

Pronotum moderately oblong and slightly wider than head (see ratios PL/PW and PW/HW); puncturation similar to that of head, but slightly denser; microsculpture absent.

Elytra about 1.15 times as wide as pronotum, relatively long, but of very variable length (see ratio EL/PL), and about 1.1 times as wide as abdomen; puncturation relatively dense, shallower and less well-defined than that of pronotum. Hind wings present. Legs of similar morphology as in *L. gracile*.

Abdomen subparallel; puncturation of segments III–VI rather dense, on posterior segments much sparser; microsculpture dense and fine, composed predominantly of transverse striae, on posterior tergites also of transverse meshes; posterior margin of tergite VII with palisade fringe.

♂: posterior margin of sternite VII in the middle convex, on either side of this projection with small, but distinct cluster of dark long setae directed diagonally medio-caudad (Figs. 55, 56); sternite VIII with posterior incision not reaching middle (Fig. 57); aedeagus of similar morphology as in *L. rubripenne* and *L. turcmenicum*, ventral process as in these species apically with fine notches (Figs. 51–54).

Comparative notes and intraspecific variation

The species is highly similar to *L. gracile*. Due to considerable intraspecific variation of external characters (especially in *L. gracile*), a reliable separation of the two species is possible only based on an examination of the aedeagus. From other congeners, *L. dimidiatum* is distinguished primarily by the characteristic modifications of the male sternite VII and by the distinctive morphology of its aedeagus, from the similar and closely related *L. rubripenne* and *L. turcmenicum* also as follows: from *L. rubripenne* by the anteriorly extensively and distinctly darkened elytra and by the anteriorly infuscate abdominal segment VIII; from *L. turcmenicum* by the differenct coloration, the much coarser puncturation of the forebody, the smaller eyes, the more oblong head, and the relatively broader pronotum.

Distribution and bionomics

This evidently widespread, but rare species is known from three scattered localities in Romania, Georgia, and Turkmenistan (Fig. 58). In Kumisi, the species was

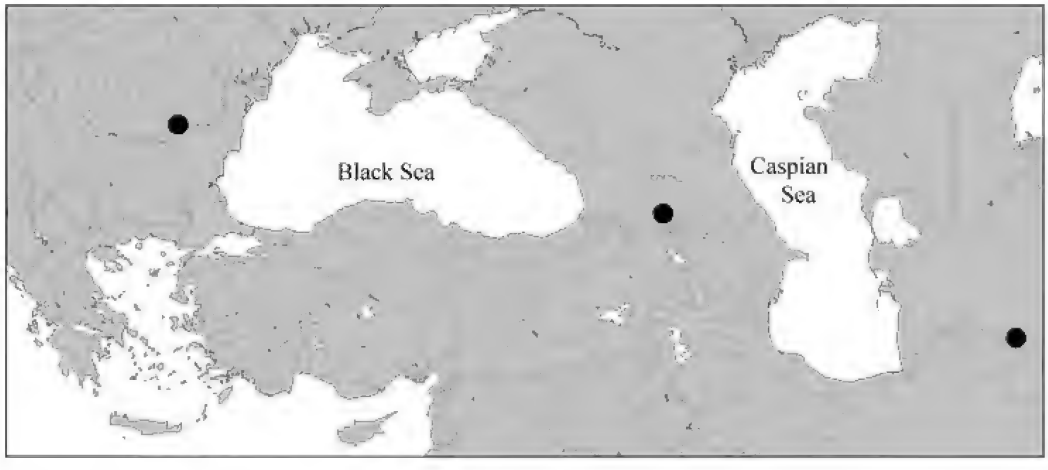


Fig. 58. Distribution of *Leptobium dimidiatum* (Gridelli) based on revised records.

collected on the shore of a salt lake on soil almost without vegetation, together with *Leptobium gracile*, *Platyprosopus elongatus* Mannerheim, and various species of halophilous Carabidae (SCHÜLKE pers. comm.).

3.5 *Leptobium turcmenicum* Coiffait, 1967 (Figs. 464–468)

Leptobium turcmenicus [sic]; COIFFAIT (1967: 354f.).

Type examined

Holotype ♂: Repetek, Peski, 15.4.65, Turkmenie / Holotype / Museum Paris coll. H. COIFFAIT / *Leptobium turcmenicus* Coiff. H. COIFFAIT det. 1967 (MNHNP).

Additional material examined (total, including types: 36 exs.)

Turkmenistan – 12 exs., Tedshen ["Tedzen"], 12.–26.III.1992, leg. SNIŽEK (NHMW, cAss); 2 exs., Repetek, III.1982, leg. KRIVOKHATSKY (ZIN); 1 ex., "Repetek" [Cyrillic], 16.IV.65 / Type / *Leptobium turcmenicus* Coiff., H. COIFFAIT det. 1967 (cKal); 1 ex., same data, but "15.IV.65" and "Paratype" (cKal); 11 exs., "Eroylan-Duz", V.1968, leg. MEDVEDEV (ZIN); 1 ex., Kizyl-Arvat, 9.V.1953, leg. STEINBERG (ZIN).

Kazakhstan – 1 ex., Dzhezkazgan, Sary-Su valley, 6.VI.1961, leg. ARNOLDI (ZIN); 2 exs., Kara-Turgai [45°45N, 63°45E], leg. BALLONI (NHMW); 1 ex., Karatala, Kopalsky territory, Semireche, 12.V.1930, leg. KIRSCHENBLAT (ZIN).

Uzbekistan – 1 ex., Karakalpakia, western shore of Aral Sea, 11.V.1969, leg. PIRNAZAROV (ZIN); 1 ex., Beytal, Lake Karatereng [43°14N, 60°23E], 24.V.1972, leg. MEDVEDEV (ZIN).

Locality not identified – 1 ex., valley of Sumbar river, 12 km below Karakaly, 11.X.1935, leg. ARNOLDI (ZIN).

Comments

The original description is based on a single holotype, which was found in the COIFFAIT collection in the MNHNP. Consequently, the two males in the KHNZORIAN collection, which are labelled as "type" and "paratype" and which, too, were collected in the type locality and seen by COIFFAIT, do not have type status. It seems that COIFFAIT (1967) confined himself to specifying only the holotypes of the species he described in that paper and refrained from indicating any paratypes whatsoever.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 18): HL: 0.78–0.95, 0.85; HW: 0.74–0.91, 0.82; PW: 0.76–0.91, 0.80; PL: 0.87–1.03, 0.93; EL: 0.70–0.91, 0.79; TiL: 0.68–0.82, 0.74; TaL: 0.62–0.74, 0.68; AL: 0.97–1.05, 1.02; TL: 4.9–7.2, 6.1; HL/HW: 1.01–1.08, 1.05; PW/HW: 0.94–1.03, 0.98; PL/PW: 1.11–1.21, 1.16; EL/PL: 0.78–0.89, 0.85; TiL/TaL: 1.00–1.16, 1.08.

Small species (see measurements); habitus as in Fig. 464. Coloration: head brown; pronotum, elytra, abdominal segments VII–X, and appendages bright reddish yellow; abdominal segments III–VI black.

Head weakly oblong (see ratio HL/HW); eyes large; postocular region only about 1.5 times the length of eyes in dorsal view; puncturation moderately coarse and moderately sparse, interstices on dorsal surface on average about twice as wide as punctures; microsculpture absent. Antennae slender, antennomere III approximately 1.3 times as long as II, VI distinctly oblong, and X about as wide as long.

Pronotum slightly narrower than head and distinctly oblong (see ratios PW/HW and PL/PW); lateral margins slightly tapering caudad in dorsal view; puncturation about as coarse as that of head, but much denser; microsculpture absent.

Elytra relatively long (see ratio EL/PL); puncturation conspicuously fine and relatively dense; pubescence decumbent. Tarsi relatively long, metatarsus only slightly shorter than metatibia (see ratio TaL/TiL).

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse meshes; posterior margin of tergite VII with palisade fringe.

♂: sternite VII with shallowly impressed median line without pubescence, posteriorly increasing in width and depth, posteriorly on either side of this impression with a conspicuous cluster of dense, stout and dark setae (Fig. 467); sternite VIII as in Fig. 468; aedeagus with ventral process of highly distinctive shape (Figs. 465, 466).

Comparative notes

The species is distinguished from all similar congeners by the long, densely and finely punctate elytra, rather large head, by the distinctly modified male sternite VII, as well as by the highly distinctive aedeagus, especially the shape of the ventral process.

Distribution and bionomics

The species is apparently widespread in Middle Asia; it has been recorded from Turkmenistan, Kazakhstan, and Uzbekistan. Bionomic data are not available.

3.6 *Leptobium exiguum* **n. sp.** (Figs. 59–64)

Types

Holotype ♂: Rußland, Primorie (S24), Schutzgebiet Lazowkij [recte: Lazowskij] Kordon Benewka, 7.–11.V.1997, leg. J. SUNDUKOW / Holotypus ♂ *Leptobium exiguum* det. V. ASSING 2003 (cAss).

Paratypes: 1 ♂: Rußland, Primorie (S26), Schutzgebiet Lazowkij [recte: Lazowskij] Kordon Amerika, 24.–27.IV.1997, leg. J. SUNDUKOW (cSch); 1 ♂: Rußland, Primorie (S39), Schutzgebiet Lazowkij [recte: Lazowskij] Kordon Amerika, 24.–28.IV.1998, leg. J. SUNDUKOW (cSch).

Etymology

The name (Latin, adjective: minute) refers to the small size of the species.

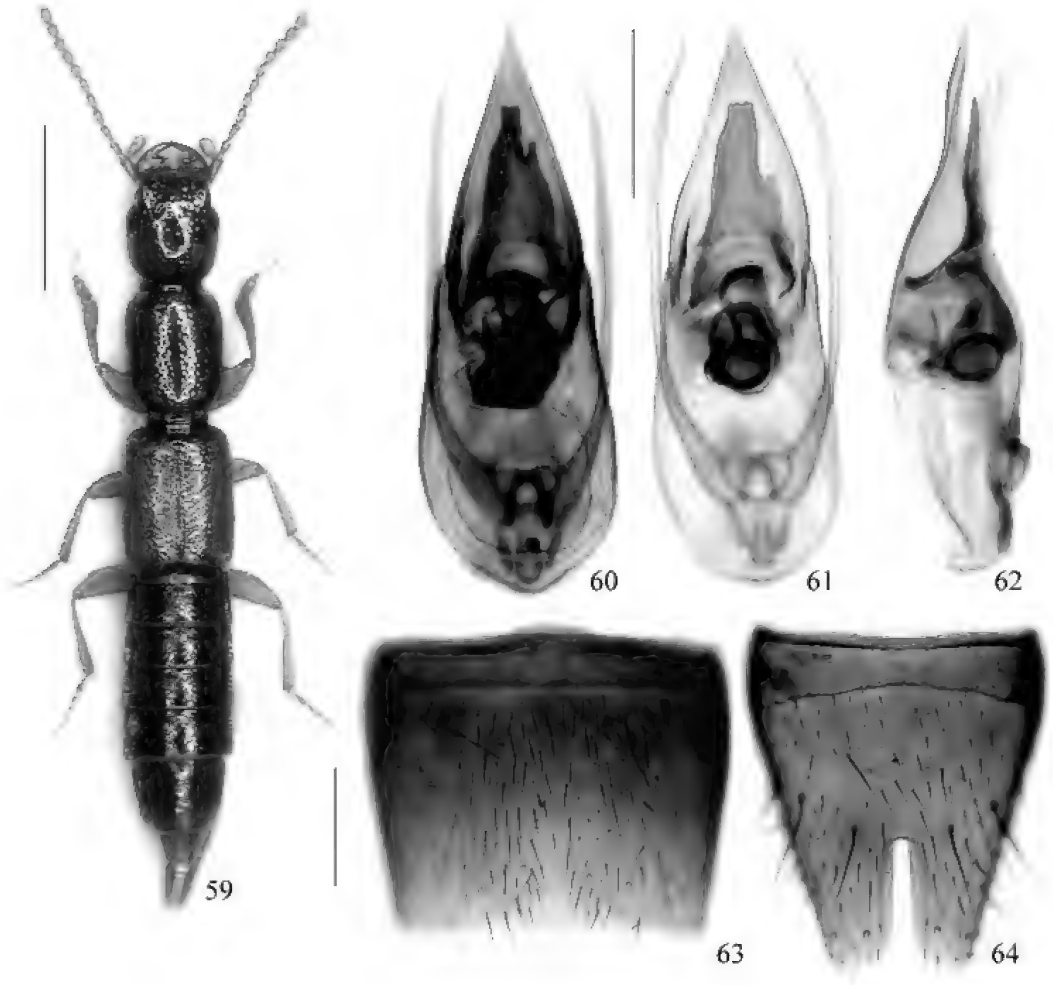
Description

Measurements (in mm) and ratios (range; n = 3): HL: 0.64–0.66; HW: 0.54–0.58; PW: 0.59–0.62; PL: 0.70–0.74; EL: 0.64–0.70; TiL: 0.49–0.52; TaL: 0.43–0.45; AL: 074; TL: 4.3–4.7; HL/HW: 1.14–1.19; PW/HW: 1.06–1.10; PL/PW: 1.19–1.20; EL/PL: 0.90–0.97; TiL/TaL: 1.09–1.19.

Smallest species of the genus (see measurements); habitus as in Fig. 59. Forebody more or less uniformly ferrugineous to castaneous, with the elytra occasionally slightly lighter; abdominal segments III–VII blackish; posterior margin of segment VII and segments VIII–X brown; legs and antennae testaceous.

Head distinctly oblong (see ratio HL/HW); eyes large, postocular region only slightly more than 1.5 times as long as eyes in dorsal view; puncturation sparse and moderately coarse, interstices on dorsal surface on average about 2–3 times as wide as diameter of punctures. Antennae relatively short; antennomere III not or only indistinctly longer than II, VI weakly oblong.

Pronotum distinctly oblong and slightly wider than head (see ratios PL/PW and PW/HW); puncturation similar to that of head, but denser.

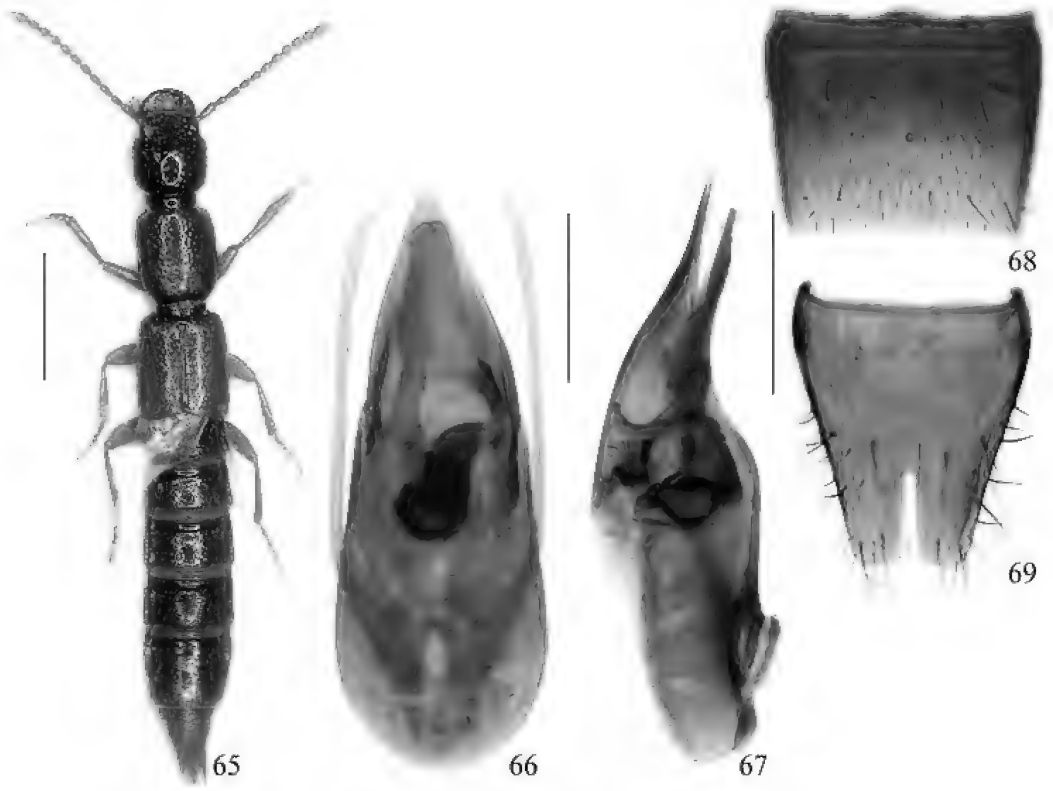


Figs. 59–64. *Leptobium exiguum* n. sp. (holotype: 59–60, 63, 64). – **59**. Habitus. – **60–62**. Aedeagus in ventral and in lateral view. – **63**. Male sternite VII. – **64**. Male sternite VIII. – Scale bars: 1 mm (59), 0.2 mm (60–64).

Elytra about 1.15 times as wide as pronotum and very long, at suture almost as long as pronotum (see ratio EL/PL); as wide as or slightly wider than abdomen; puncturation finer, shallower, and less well-defined than that of pronotum. Hind wings present. Legs with relatively long tarsi, metatarsus almost as long as metatibia (see ratio TiL/TaL).

Abdomen subparallel; puncturation of segments III–VI fine and moderately dense, on posterior segments sparser; microsculpture dense and fine, composed predominantly of transverse striae, on posterior tergites also of transverse meshes; posterior margin of tergite VII with palisade fringe.

♂: sternite VII in posterior median area with small area of triangular shape without pubescence, without distinct clusters of setae, posterior margin weakly concave and in the middle indistinctly convex (Fig. 63); sternite VIII with posterior incision not reaching middle (Fig. 64); aedeagus with long and acute dorsal plate; ventral process long, laterally dentate, and apically with weak notches (Figs. 60–62).



Figs. 65–69. *Leptobium chinense* n. sp. – **65**. Habitus. – **66–67**. Aedeagus in ventral and in lateral view. – **68**. Male sternite VII. – **69**. male sternite VIII. – Scale bars: 2 mm (65), 0.2 mm (66–67), 0.5 mm (68–69).

Comparative notes and systematics

Based especially on the male primary and sexual characters, the species doubtlessly belongs to the *L. gracile* group. It shares the synapomorphic presence of notches at the apex of the ventral process of the aedeagus with *L. dimidiatum*, *L. turcmenicum*, and the following species. From all its congeners, it is readily distinguished by its small size and by the morphology of the aedeagus, especially the shape of the ventral process. From most other species it is additionally separated by the large eyes, the coloration, and the conspicuously long elytra.

Distribution and bionomics

The types were collected in two localities in the Primorskiy Kray in the Russian Far East. Bionomic data are not available.

3.7 *Leptobium chinense* n. sp. (Figs. 65–69)

Types

Holotype ♂: China, Hebei, 36.47N, 114.30E, Yongnian, VI–XI.1995, D-Vac & Barber traps, leg. SHUIQIANG LI / Holotypus ♂ *Leptobium chinense* det. V. ASSING 2003 (cAss).

Paratype: 1 ♂: same data as holotype (cSch).

Etymology

The name (Latin, adjective) refers to the fact that the species is currently the only known representative of the genus from China.

Description

Measurements (in mm) and ratios (holotype, paratype): HL: 0.66, 0.66; HW: 0.60, 0.58; PW: 0.66, 0.64; PL: 0.76–0.74; EL: 0.66, 0.66; TiL: 0.56, 0.57; TaL: 0.52, 0.50; AL: 072, 0.70; TL: 4.9–5.5; HL/HW: 1.10, 1.14; PW/HW: 1.10, 1.10; PL/PW: 1.16, 1.16; EL/PL: 0.86, 0.89; TiL/TaL: 1.08–1.12.

Habitus as in Fig. 65. Highly similar to *L. exiguum*, distinguished from that species as follows:

Body slightly larger (see measurements). Head dark brown to blackish brown; pronotum castaneous to dark brown; elytra, posterior third of abdominal segment VII, and segments VIII–X ferrugineous. Antennae slightly longer, antennomere III distinctly (but less than 1.5 ×) longer than II. Elytra relatively shorter.

♂: sternite VII of similar shape and chaetotaxy as in *L. exiguum*, but in posterior median area with pubescence (Fig. 68); sternite VIII as in Fig. 69; dorsal plate of aedeagus apically less acute; ventral process larger and broader (Figs. 66, 67).

Comparative notes and systematics

Based on the similar morphology of external, as well as of the male sexual characters, *L. chinense* is evidently very closely related to *L. exiguum*; for distinguishing characters see the description above. From all other species of the genus, it is readily separated especially by its small size and the shape of the aedeagus, from most species also by the coloration, the large eyes, and by the relatively long elytra.

Distribution and bionomics

The species is known only from one locality in the south of Hebei province, eastern China, where it was apparently collected either with pitfall traps or with D-vac.

3.8 *Leptobium melanocephalum* (Reiche & Saulcy, 1856) (Figs. 70–75)

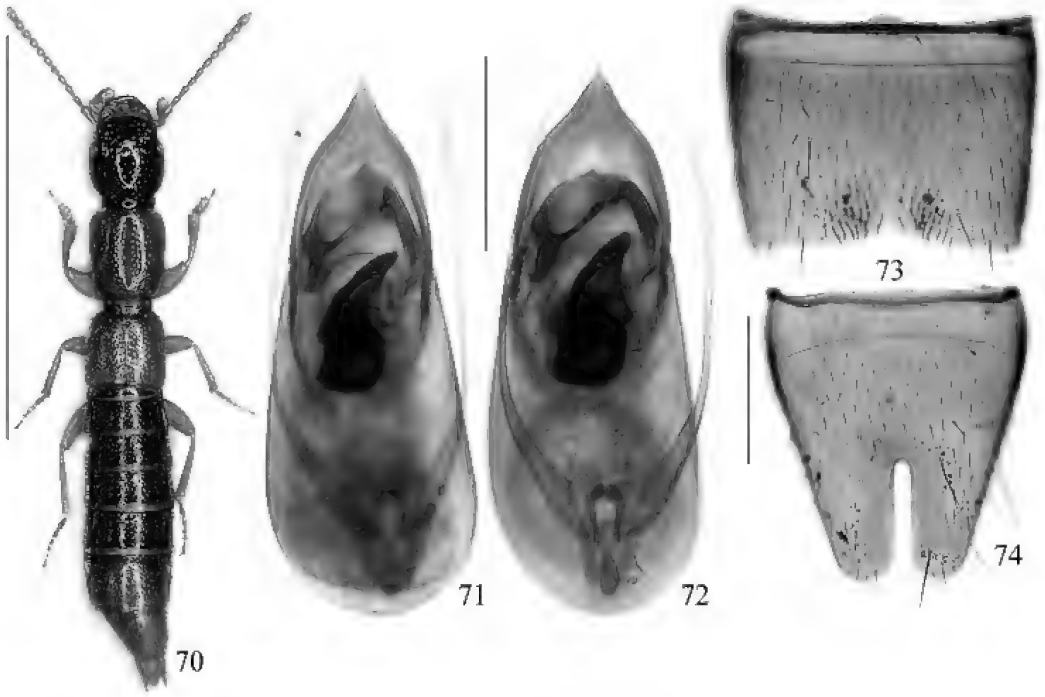
Lathrobium melanocephalum; Reiche & Saulcy (1856: 366f.).

Additional material examined (total: 104 exs.)

Greece – Attica: 5 exs., Athína, Hymettos, 13.III.1959, leg. Coiffait (MNHNP, cAss); 1 ex., Hymettos, 27.X.1963, leg. Coiffait (MNHNP); 3 exs., Hymettos, leg. Strupi (NHMW); 1 ex., Athína, Peania, 7.I.1966 (MNHNP); 4 exs., Athína (HNHM, IRSNB, NHMW); 3 exs., Athína, leg. Strupi (NHMW); 2 exs., Piraeus (IRSNB); 1 ex., Sfendali, leg. Strupi (cAss); 1 ex., Spáta, 2.IV.1976 (MNHNP); 3 exs., Párnis Oros, 15.IV.1959, leg. Coiffait (MNHNP); 1 ex., Párnis Oros, leg. Strupi (cAss); 8 exs., Rafina, 20.III.1959, leg. Coiffait (MNHNP); 2 exs., Marathon, 6.IV.1959, leg. Coiffait (MNHNP); 6 exs., Akraífnion, 31.I.1976 (MNHNP); 1 ex., Keratea, 12.III.1959, leg. Coiffait (MNHNP); 19 exs., locality not specified (DEI, HNHM, IRSNB, MHNG, MNHNP, MNHUB, NHMW). – Voiotia: 6 exs., Parnássos (MHNG, NHMW, cAss). – Evvoia: 3 exs., Karystos, leg. v. Oertzen (DEI, MNHUB, cAss); 1 ex., Stura, leg. v. Oertzen (MNHUB); 1 ex., lake near Dystos, leg. v. Oertzen (MNHUB); 1 ex., Ocha Oros, leg. v. Oertzen (MNHUB). – ?Ipiros [confusion of labels?]: 1 ex., Ioannina, 17.III.1959, leg. Coiffait (MNHNP). – Pelopónnisos: 1 ex., Cumani (cAss). – Kéa: 2 exs., "Keos", leg. v. Oertzen (MNHUB, cAss). – Locality not specified: 27 exs., "Graecia", etc. (DEI, HNHM, IRSNB, MHNG, NHMB, NHMW, SMNS, SMTD, ZIN).

Comments

The original description is based on an unspecified number of syntypes from the Pelopónnisos. The type specimen(s) were looked for, but not found in the collections of the MNHNP. However, in view of the fact that *L. melanocephalum* is the



Figs. 70–74. *Leptobium melanocephalum* (Reiche & Saulcy). – **70.** Habitus. – **71–72.** Aedeagus in ventral view of two males from Hymettos. – **73.** Male sternite VII. – **74.** Male sternite VIII. – Scale bars: 5 mm (70), 0.5 mm (71–74).

only species of the genus with a rufous pronotum that is known to occur in the Pelopónnisos, there is no doubt that the present interpretation is correct.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 44): HL: 0.91–1.09, 1.00; HW: 0.87–1.01, 0.93; PW: 0.87–1.03, 0.94; PL: 1.03–1.24, 1.13; EL: 0.64–0.80, 0.72; TiL: 0.74–0.89, 0.83; TaL: 0.66–0.82, 0.72; AL: 1.28–1.48, 1.39; TL: 5.7–8.0, 7.0; HL/HW: 1.02–1.14, 1.08; PW/HW: 0.98–1.07, 1.02; PL/PW: 1.16–1.24, 1.20; EL/PL: 0.58–0.70, 0.64; TiL/TaL: 1.05–1.31, 1.16.

Species of moderate size (see measurements); habitus as in Fig. 70. Head blackish brown to black, abdominal segments III–VI black; pronotum, elytra, and abdominal segments VII–X rufous; appendages yellowish brown.

Head oblong (see ratio HL/HW); posterior angles weakly marked; puncturation rather sparse, interstices on dorsal surface usually wider than diameter of punctures; microsculpture absent; eyes moderately large, temples slightly less than twice the length of eyes in dorsal view. Antennae with antennomere II as long as or only slightly shorter than III.

Pronotum distinctly oblong and approximately as wide as head (see ratios PL/PW and PW/HW); puncturation similar to that of head, but usually slightly denser; microsculpture absent.

Elytra approximately as wide as and at suture distinctly shorter than pronotum (see ratio EL/PL); puncturation finer and slightly denser than that of pronotum, in most specimens well-defined; microsculpture absent. Hind wings absent.

Abdomen subparallel, slightly wider than elytra, widest at segment VI; puncturation of segments III–VI rather dense and large, but shallow; microsculpture usually distinct and composed of transverse striae; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with broadly concave posterior margin, in posterior median area with small depressed area of triangular shape, on either side of this area with group of relatively stout dark setae (Fig. 73); sternite VIII with rather short posterior incision (Fig. 74); aedeagus almost symmetrical (Figs. 71, 72).

Intraspecific variation

Max/min ratios: HL: 1.20; HW: 1.17; PW: 1.19; PL: 1.20; EL: 1.26; TiL: 1.19; TaL: 1.25; AL: 1.16; HL/HW: 1.12; PW/HW: 1.09; PL/PW: 1.08; EL/PL: 1.21; TiL/TaL: 1.25.

Intraspecific variation is moderately high, which is explained also by the fact that *L. melanocephalum* has a rather restricted distribution. The shapes of the ventral process and the dorsal plate of the aedeagus are somewhat variable, too, even in specimens from the same locality.

Comparative notes

From the species with a similar coloration pattern, none of which occurs in mainland Greece, *L. melanocephalum* is distinguished especially by the morphology of the aedeagus.

Distribution and bionomics

The distribution of *L. melanocephalum* is apparently confined to southern Greece. Revised records are from the Attika, Voiotia, Evvoia, Kéa, and the northern Pelopónnisos. It has often been found in the surroundings of Athens (Fig. 75). The record from "Ioannina" should be regarded as doubtful, since it has not been confirmed and it does not fit in with the general distribution of the species; it may be based on a confusion of labels. Details regarding the bionomics of the species are not available.

3.9 *Leptobium creticum* Coiffait, 1973 (Figs. 76–85, 90–92)

Leptobium creticum; Coiffait (1973a: 120f.).
Leptobium minos; Bordoni (1984: 86f.), **n. syn.**

Types examined

L. creticum: Holotype ♂: Kreta, Wettstein 1942, Ida-Gipfelstock, 2000–2500 m, 6.VII. / Holotype / *Leptobium creticum* Coiff. H. Coiffait det. 1972 / Holotypus *Leptobium creticum* Coiffait rev. V. Assing 2004 (NHMB).

L. minos: Holotype ♂: Levka Ori, Creta / Holotypus / *Leptobium minos* n. sp., det. Bordoni 1983 (cBor).

Additional material examined (total, including types: 29 exs.)

Greece – Kríti: 2 exs., same data as holotype, labelled as "Allotype" and "Paratype", respectively (MNHNP, NHMB); 1 ex., Kerá, 24.IV.1975, leg. Waldén (cBor); 1 ex., Ida Oros, 2200 m, leg. Biró (HNHM); 2 exs., Lasithi plain, 22.IV.1971, leg. Wewalka (NHMW, cAss); 2 exs., Lasithi, leg. v. Oertzen (MNHUB, cAss); 1 ex., Iraklion, 7.IV.1971, leg. Wewalka (NHMW); 1 ex., Ida ["Nidda"], Kusakas, near snow, 19.IV.1962, leg. Kühnelt (NHMW); 2 exs., Rethimnon, Armeni, 35°17′N, 24°28′E, oak forest, 22.IV.2000, leg. Meybohm (cAss); 1 ex., Psiloritis, Axos, 500 m, macchia, 10.X.1991, leg. Wunderle (cWun); 3 exs., Ida range, Anoria, 14. and 26.III.1976, leg. Fülscher & Meybohm (MHNG, cAss); 1 ex., Ierapetra,

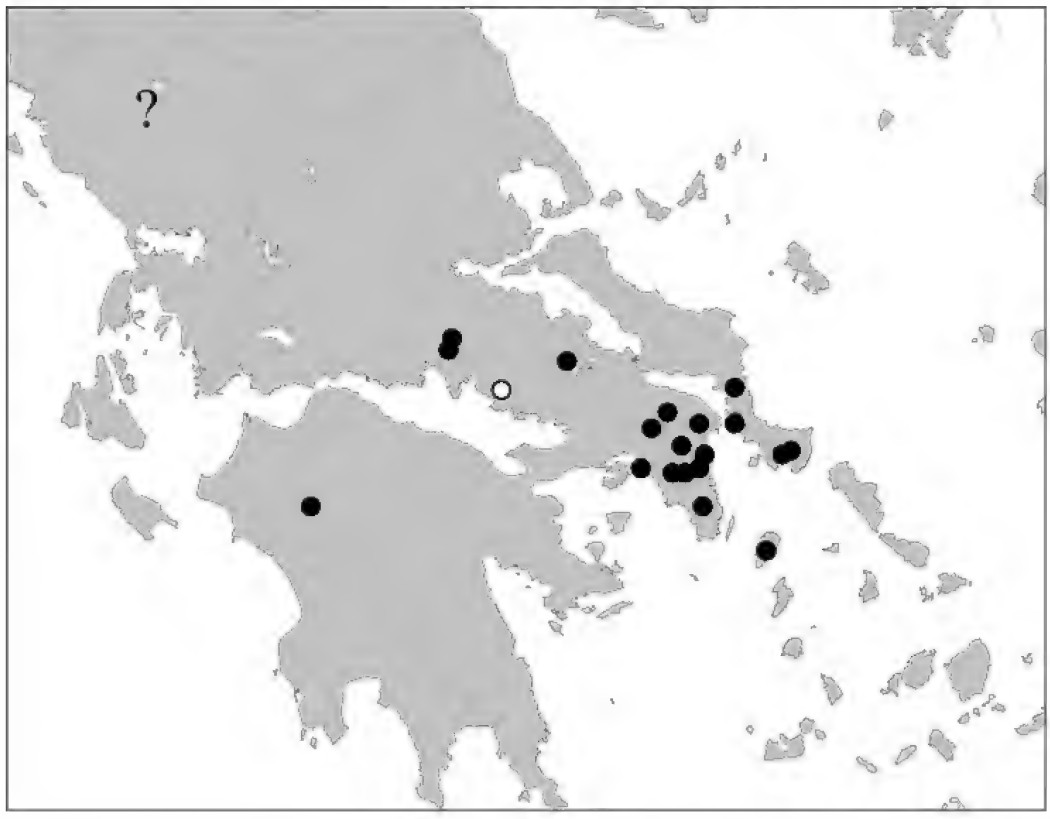


Fig. 75. Distributions of *Leptobium melanocephalum* (Reiche & Saulcy) (●) and *L. graecum* Gusarov (○) in southern Greece. ? = doubtful record of *L. melanocephalum* from "Ioannina".

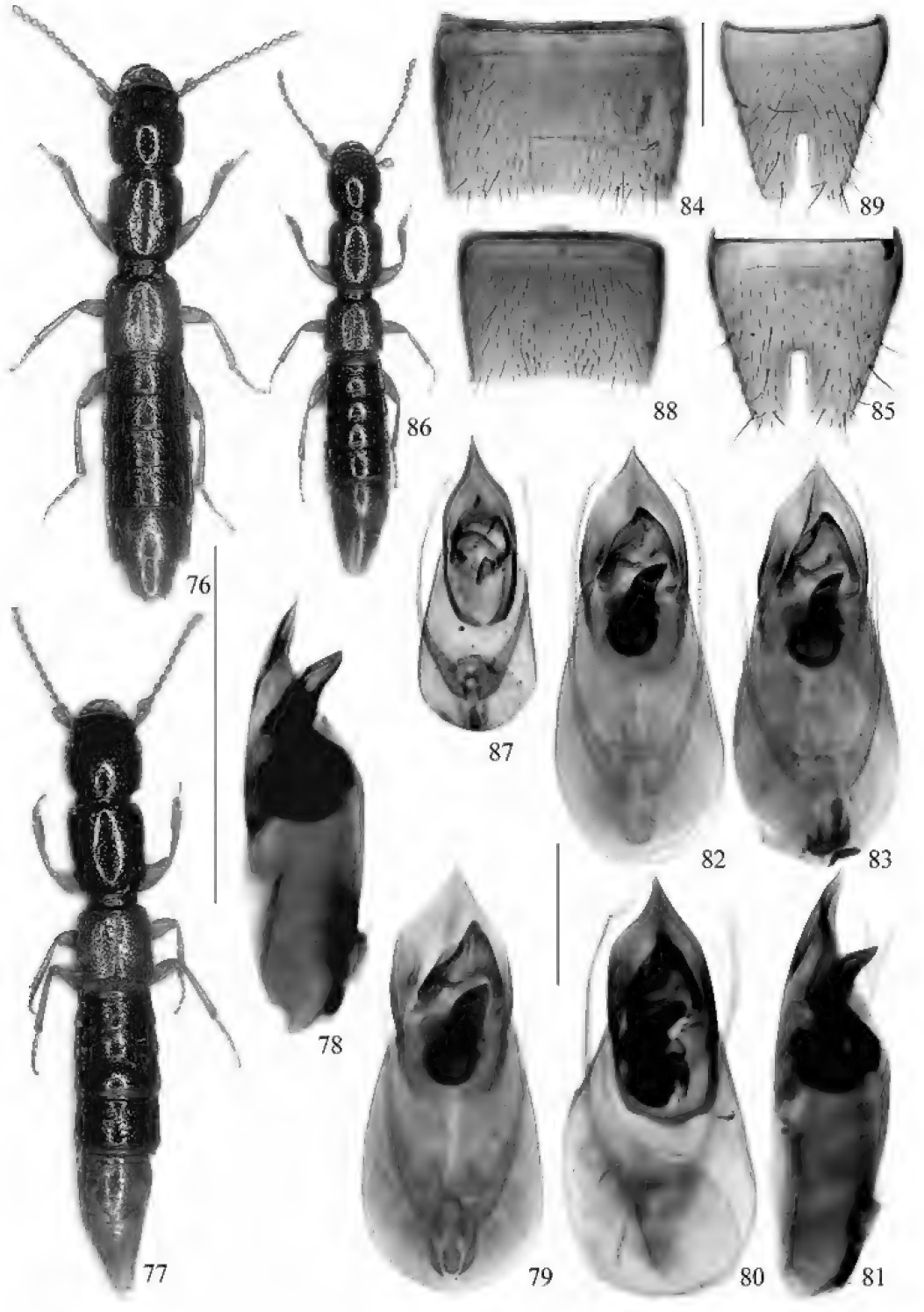
15.IV.–13.V.1971, leg. MALICKY (cAss); 1 ex., Frangocastelo, 12.IV.1993, leg. WINKELMANN-KLÖCK (cAss); 3 exs., Plakias, 2.–16.IV.1993, leg. WINKELMANN (cSch); 1 ex., Plakias, 1.IV.1988, leg. WINKELMANN-KLÖCK (cSch); 1 ex., Spili, 10.IV.1993, leg. WINKELMANN-KLÖCK (cSch); 1 ex., W-Crete, pass Petres-Impros, 23.III.1973, leg. FÜLSCHER & MEYBOHM (MHNG); 1 ex., W-Crete, km 35 Chania – Palaiokhóra [ca. 35°20N, 23°54E], 21.IV.1971, leg. WITTMER (NHMB); 1 ex., E-Crete, Thripti, 35°05N, 25°52E, 1000 m, 11.III.2001, leg. MEYBOHM (cAss); 1 ex. [with black pronotum], Omalos, 1100 m, X.1991, leg. WUNDERLE (cWun).

Comments

The original description of *L. creticum* is based on a single male. According to COIFFAIT (1973a), the holotype is deposited in his collection. The Coiffait collection, however, only contains a single female, labelled as "Allotype". The holotype and another specimen with the same collection data and labelled as "Paratype" were found in the collections of the NHMB. The two specimens labelled as allo- and paratype, respectively, have no type status since they are not mentioned in the original description. For details regarding the synonymy of *L. minos* with *L. creticum* see the remarks on intraspecific variation below.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 29): HL: 1.01–1.26, 1.14; HW: 0.91–1.13, 1.03; PW: 0.92–1.13, 1.03; PL: 1.07–1.30, 1.19; EL: 0.72–0.93, 0.84; TiL: 0.78–1.01, 0.92; TaL: 0.72–0.84, 0.80; AL: 1.48–1.67, 1.58; TL: 6.4–8.6, 7.5;



Figs. 76–89. *Leptobium creticum* Coiffait (76–85) (77–79: holotype of *L. minos* Bordoni) and *L. thryptisense* n. sp. (86–89). – **76, 77, 86**. Habitus. – **78–83, 87**. Aedeagus in lateral and in ventral view. – **84, 88**. Male sternite VII. – **85, 89**. Male sternite VIII. – Scale bars: 5 mm (76, 77, 86), 0.5 mm (78–85, 87–89).

HL/HW: 1.04–1.18, 1.11; PW/HW: 0.94–1.04, 1.00; PL/PW: 1.10–1.20, 1.16; EL/PL: 0.65–0.75, 0.70; TiL/TaL: 1.03–1.21, 1.17.

In external appearance similar to *L. melanocephalum* or *L. graecum* (Figs. 76, 77), but distinguished as follows:

Head of variable coloration, rufous to blackish; pronotum, too, of variable coloration, rufous or blackish; elytra rufous; elytra on average longer in relation to pronotum (see ratio EL/PL).

♂: sternite VII without distinct clusters or patterns of setae and only indistinctly concave posteriorly (Fig. 84); sternite VIII with posterior incision clearly not reaching middle (Fig. 85); aedeagus highly variable: dorsal plate usually asymmetric and with distinct median carina dorsally, ventral process more or less distinctly asymmetrical (Figs. 78–83).

Intraspecific variation

Max/min ratios: HL: 1.24; HW: 1.25; PW: 1.24; PL: 1.21; EL: 1.29; TiL: 1.29; TaL: 1.17; AL: 1.13; HL/HW: 1.10; PW/HW: 1.09; PL/PW: 1.09; EL/PL: 1.15; TiL/TaL: 1.17.

This species is remarkably variable, not only in size-related parameters, but also in coloration, and in the shapes of the ventral process and the dorsal plate of the aedeagus. The colour of the head is usually either rufous or blackish, more rarely it is of intermediate coloration; both black-headed and read-headed specimens occur all over Crete, but the red-headed specimens seem to predominate. Even in the sample of three specimens from which the holotype of *L. creticum* originated, both

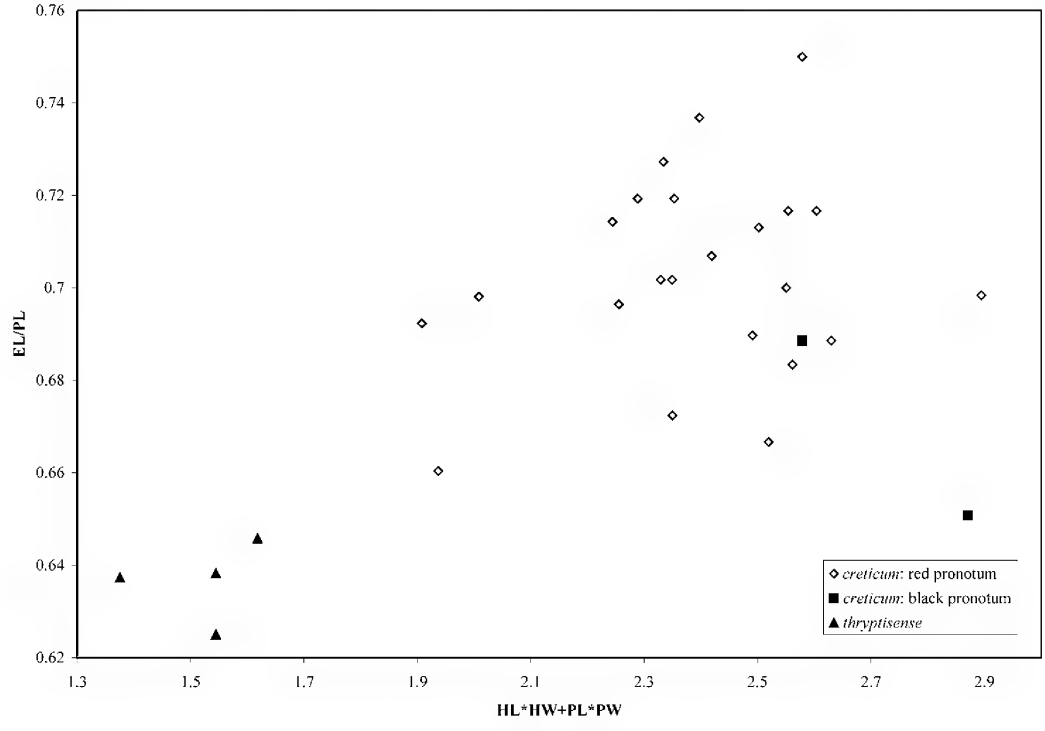


Fig. 90. *Leptobium creticum* Coiffait and *L. thryptisense* n. sp. Relative elytral length in relation to body size (see chapter 2).

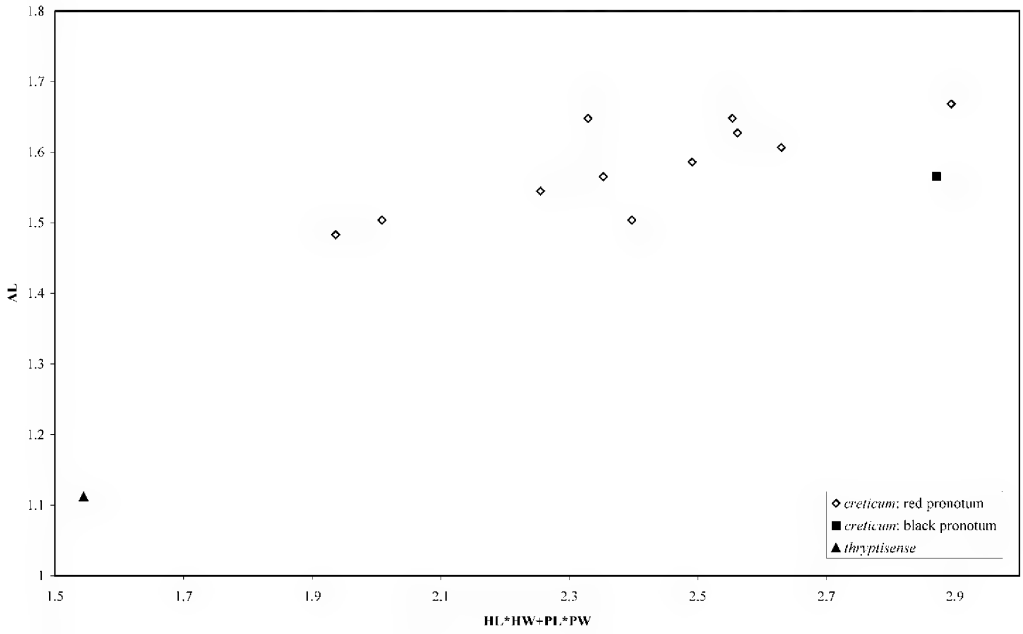


Fig. 91. *Leptobium creticum* Coiffait and *L. thryptisense* n. sp. Aedeagus length in relation to body size (see chapter 2).

colour morphs are present. The colour variation of the head does not correspond to any plausible distribution pattern. Specimens with a black pronotum are known only from western Crete (holotype of *L. minos* and an additional specimen from Omalos). However, since an examination of external morphology and of the male sexual characters (Figs. 76–85, 90, 91) yielded no further evidence that these specimens should represent a distinct species and, moreover, since specimens with a red pronotum occur in the same area, the different pronotal coloration is attributed to intra- rather than interspecific variation. Consequently, *L. minos* is here synonymised with *L. creticum*.

As is indicated by the max/min ratios above, size-related parameters highly variable, too, but the extreme states are linked by transitional conditions (Figs. 90, 91). Based on the morphometric data, a second species, *L. thryptisense* (see the following section), is present in the Thripti Oros, eastern Crete, which is separated from *L. creticum* not only by distinctly lesser size and shorter elytra (Fig. 90), but also by a distinctly smaller aedeagus of different shape (Fig. 91). Since, on one occasion, this species was found together with *L. creticum*, this variation is clearly not clinal.

Comparative notes and systematics

The only other brachypterous species occurring in Crete is the much smaller *L. thryptisense*, from *L. creticum* it is separated not only by larger size (no overlap), but also by relatively longer elytra and a larger aedeagus of different morphology.

Distribution and bionomics

The species is apparently endemic to Crete, where it is widespread (Fig. 92) and where it has been collected at a wide range of altitudes, from near sea-level up to 2200 m. The record of *L. venustum* from Crete by Scheerpeltz (1964) refers to this species.

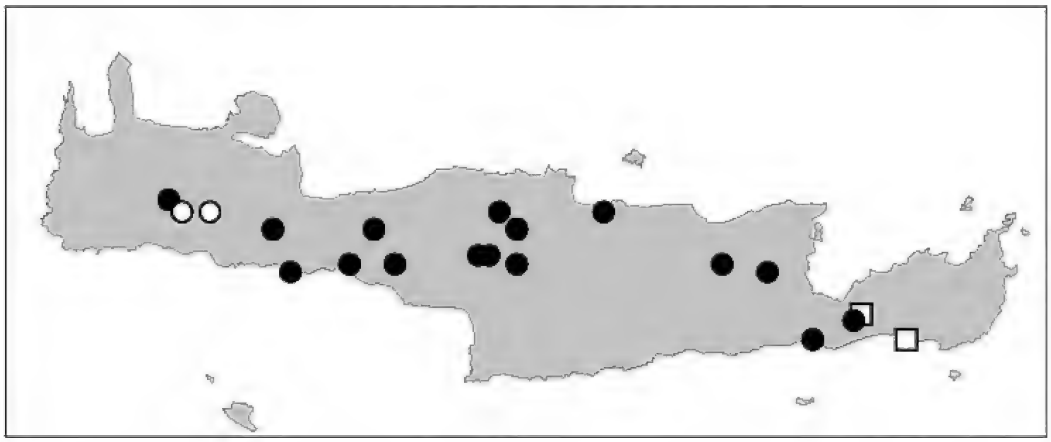


Fig. 92. Distributions of *Leptobium creticum* Coiffait (● = specimens with red pronotum; ○ = specimens with black pronotum) and *L. thryptisense* n. sp. ([□]) in Crete (Greece).

3.10 *Leptobium thryptisense* n. sp. (Figs. 86–92)

Types

Holotype ♂: N35°05′, E025°52′, GR Ostkreta, Thripti, 1000 m, Meybohm, 11.3.2001 / Holotypus ♂ *Leptobium thryptisense* sp. n. det. V. Assing 2003 (cAss).

Paratypes: 1 ♀: same data as holotype (cAss); 1 ♀: GR. – Eastern Crete, Lagáda, 27.III.1973, 35°01′N, 26°00′E, leg. Meybohm & Fülscher (cAss); 1 ♀: 27.3.73 Ost-Kreta, Lagada, Dr Fülscher Meybohm (MHNG).

Etymology

The name is derived from "Thrypti Oros", the mountain range where the type locality is situated.

Description

Measurements (in mm) and ratios (range; n = 4): HL: 0.84–0.93; HW: 0.78–0.84; PW: 0.76–0.84; PL: 0.94–0.99; EL: 0.60–0.64; TiL: 0.70–0.74; TaL: 0.64–0.66; AL: 1.11; TL: 6.1–7.0; HL/HW: 1.08–1.10; PW/HW: 0.97–1.00; PL/PW: 1.17–1.23; EL/PL: 0.63–0.65; TiL/TaL: 1.10–1.16.

Habitus as in Fig. 86. On the whole similar to *L. creticum*, but distinguished as follows:

Size distinctly smaller (see measurements, Figs. 90, 91). Body rufous to reddish brown, with the abdominal segments III–VI blackish; head sometimes slightly darker than pronotum; legs and antennae testaceous. Elytra shorter in relation to pronotum (see ratio EL/PL).

♂: sternite VII posteriorly with two clusters of moderately dense dark setae, posterior margin weakly concave (Fig. 88); sternite VII as in Fig. 89; aedeagus small and relatively slender, with almost symmetrical dorsal plate and ventral process, and with only about 10 short parameral setae (Fig. 87).

Comparative notes

For separation from *L. creticum*, the only other brachypterous *Leptobium* species occurring in Crete, see remarks on intraspecific variation and the comparative notes under that species.

Distribution and bionomics

The species is known only from the very east of Crete (Fig. 92), where it was collected at altitudes of up to 1000 m.

3.11 *Leptobium graecum* Gusarov, 1988 (Figs. 75, 93–99)

Leptobium graecum; GUSAROV (1988: 624).

Type examined

Holotype ♂: Graecia, 4037-5. / *Leptobium graecum* V. Gusarov, holotypus / *Leptobium graecum* Gusarov det. V. ASSING 2004 (ZIN).

Additional material examined (total, including type: 13 exs.)

Greece – 12 exs., Voiotia, E Oros Elikonas, 15 km E Livadia, 38°19N, 22°50E, 1120 m, under stones, 4.IV.2001, leg. ASSING, WUNDERLE (cAss, cWun).

Comments

The original description of this species is unfortunately based on a single holotype without precise indication of the locality ("Graecia"). Apart from the slightly more pronounced clusters of setae on the male abdominal sternite VII (Fig. 97), the holotype is similar to the recently collected material from the Oros Elikonas (see below).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 31): HL: 0.91–1.01, 0.96; HW: 0.84–0.95, 0.90; PW: 0.87–0.99, 0.93; PL: 1.01–1.15, 1.08; EL: 0.66–0.74, 0.70; TiL: 0.72–0.84, 0.80; TaL: 0.64–0.76, 0.70; AL: 1.34–1.48, 1.43; TL: 5.6–8.5, 7.5; HL/HW: 1.04–1.10, 1.07; PW/HW: 1.02–1.06, 1.04; PL/PW: 1.15–1.18, 1.16; EL/PL: 0.62–0.68, 0.65; TiL/TaL: 1.06–1.23, 1.14.

Habitus as in Fig. 93; In general appearance similar to *L. illyricum*, but distinguished as follows:

Body smaller (see measurements). Anterior $^1/_3$–$^2/_3$ of abdominal tergite VII infuscate. Antennae with antennomere II as long as or only slightly shorter than III. Pronotum on average broader (in relation to head) and less oblong (see ratios PW/HW and PL/PW). Elytra on average shorter (see ratio EL/PL) and with – on average – denser and more well-defined puncturation.

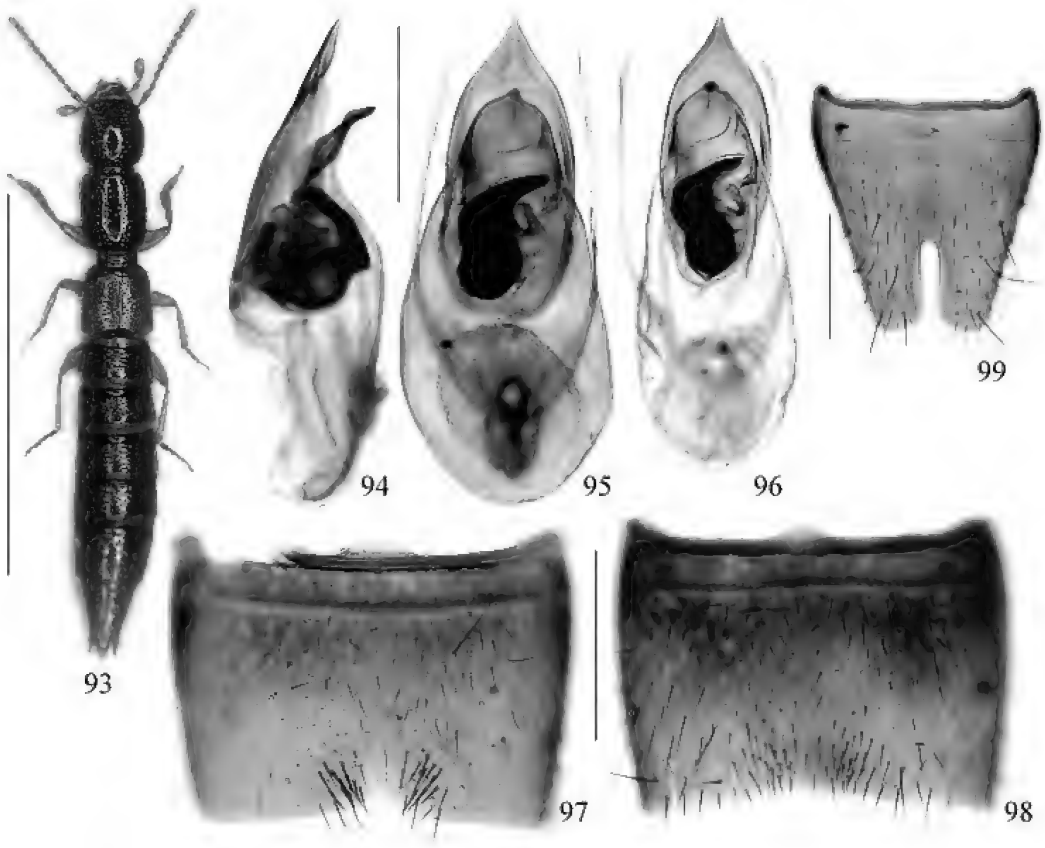
♂: sternite VII with broadly concave posterior margin, in posterior median area with small triangular depression without pubescence, on either side of this depression with a cluster of a few dark setae (Figs. 97, 98); sternite VIII not distinctive (Fig. 99); aedeagus as in Figs. 94–96.

Comparative notes

From *L. illyricum*, the only other congener of similar coloration occurring in mainland Greece, *L. graecum* is distinguished especially by its smaller size and the different shape of the aedeagus. For more distinguishing characters see the description above.

Distribution and bionomics

Previously, only the holotype of this species without specified locality ("Graecia") had been known. At present, the only locality is the Oros Elikonas in Voiotia,



Figs. 93–99. *Leptobium graecum* Gusarov (96–97: holotype). – **93.** Habitus. – **94–96.** Aedeagus in lateral and in ventral view. – **97–98.** Male sternite VII. – **99.** Male sternite VIII. – Scale bars: 5 mm (93), 0.5 mm (94–99).

southern Greece (Fig. 75), where twelve specimens were collected by turning stones, partly near snow, on a meadow at the edge of a forest at an altitude of 1120 m.

3.12 *Leptobium illyricum* (Erichson, 1840) (Figs. 100–118)

Dolicaon illyricus; Erichson (1840: 577).
Leptobium illyricum moreum; Coiffait (1969: 879), **n. syn.**
Leptobium ionicum; Bordoni (1984: 86), **n. syn.**

Types examined

D. illyricus: Lectotype ♂, here designated: Hist.-Coll (Coleoptera), Nr. 6304 (3. Ex.), *Dolicaon illyricus* Erichs., Illyr. – Dalmat. Zool. Mus. Berlin / Lectotypus *Dolicaon illyricus* Erichson desig. V. Assing 2004 / *Leptobium illyricum* (Erichson) det. V. Assing 2004 (MNHUB). – Paralectotypes: 1 ♀: same data as lectotype, but "2. Ex." (MNHUB); 1 ♂: 6304 / Hist.-Coll (Coleoptera), Nr. 6304 (1. Ex.), *Dolicaon illyricus* Erichs., Illyr. – Dalmat. Zool. Mus. Berlin / *illyricus* Er. Illyria Schüppel (MNHUB).

L. illyricum moreum: Holotype ♂: Sparte (Laconie), 20.4.65, Cerruti & Henrot / Galerie de Campagnol / Holotypus / Museum Paris coll. H. Coiffait / *Leptobium illyricum* ssp. *moreum*, H. Coiffait det. 1969 / *Leptobium illyricum* (Erichson) det. V. Assing 2003 (MNHNP). – Paratypes: 3 exs.: same data as holotype (MNHNP); 2 exs.: Taygete Knakiôn, 1200 m, 20.4.65, Cerruti & Henrot (MNHNP, NHMW); 1 ex.: Akladokampos, 600, Arcad., 17.4.65, Cerruti & Henrot (cZan).

L. ionicum: Holotype ♂: Kephallinia, Ainos, 1000 m, 31.III.1971, I. Löbl / Holotypus / *Leptobium ionicum* n. sp. det. Bordoni 1983 / *Leptobium illyricum* (Erichson) det. V. Assing 2004 (MHNG). – Paratypes: 1 ex.: same data as holotype (cBor); 1 ex.: Kephallinia, Sami, 2-IV-1971, I. Löbl (MHNG); 2 exs.: Peloponnese, Patras, 22-III-1971, I. Löbl (MHNG, cBor); 1 ex.: Zakynthos, Katastarion, 22-III-1971, I. Löbl (MHNG); 1 ex.: Zakynthos, Kopos, 24-III-1971, I. Löbl (cBor); 4 exs.: Grece, Lefkas, Kallighoni, 26-III-1971, leg. Hauser, Löbl, Mahnert (MHNG, cBor).

Additional material examined (total, including types: 751 exs.)

Slovenia – 1 ex., Savinske Alpe, 1907, leg. Rambousek (cBor).

Italian or Slovenian territory – 1 ex., Triest, leg. Hopffgarten (NHMW).

Croatia – 2 exs., Istria, locality illegible (MCSNT); 1 ex., Labin (NHMB); 1 ex., Krk island, Krk, pine forest, under stone, 7.VIII.1967, leg. Huss (NHMW); 2 exs., Krk, S Malinska, 100 m, 11.VIII.1999, leg. Schawaller (SMNS, cAss); 1 ex., Krk island, 1879, leg. Reitter (NHMW); 5 exs., Krk island (NHMW); 2 exs., Brač island, leg. Schatzmayr, etc. (NHMW, SMTD); 1 ex., Brač island, III.1908, leg. Novak (SMTD); 1 ex., Unije island (MCSNM); 1 ex., Lošinj island (MCSNM); 7 exs., Mljet island ["Meleda"], leg. Moczarski, Penecke, etc. (MCSNM, NHMW); 1 ex., Rab island, leg. Moczarski (NHMW); 1 ex., Rab island, 10.XI.1904 (SMTD); 2 exs., Korčula island ["Curzola"] (MCSNM); 1 ex., Sinj, leg. Klimesch (SMTD); 1 ex., Posedarje, 6.V.1972, leg. Dragutin (NHMW); 32 exs., Zadar ["Zara"], leg. Dielo, Haberditz, Müller (DEI, HNHM, IRSNB, MCSNM, MCSNT, MNHUB, NHMW, cAss); 1 ex., Zadar, 1891, leg. Sturany (NHMW); 1 ex., Vransko Jezero [43°54N, 15°35E] (MCSNT); 8 exs., Ludbreg, leg. Apfelbeck (HNHM); 2 exs., Stravca [42°36N, 13°19E], leg. Winkler (MHNG, cAss); 2 exs., Sućurac [43°33N, 16°26E], X.1923, leg. Novak (cBor, cAss); 1 ex., Dugopolje, 16.–18.IV.2002, leg. Zieris (cKra); 1 ex., Biokovo mts., Sv. Jure [ca. 43°20N, 17°02E], 1500 m, 12.IX.1988, leg. Wolf (cSch); 1 ex., Dubrovnik, X.1918, leg. Priesner (NHMW); 1 ex., Dubrovnik, IV.1965 (cBor); 1 ex., Dubrovnik, 17.III.1912, leg. Neuhaus (MCSNM); 1 ex., Dubrovnik, Lapad, II.1915, leg. Mussapp (MCSNM); 34 exs., Dubrovnik, leg. Holdhaus, Kaufmann, Reitter, etc. (HNHM, MNHUB, NHMW, SMTD, ZIN); 1 ex., Cavtat, V.1934, leg. Stöcklein (NHMB); 1 ex., Janjina, XI.1913, leg. Mussapp (MCSNM); 1 ex., Castella, IX.1912, leg. Novak (MCSNM); 3 exs., Split, IV.1928, leg. Heberdey (NHMW, cAss); 9 exs., Split, Mosor [43°30N, 16°40E], 1330 m, IV.1928, leg. Heberdey (NHMW, cAss); 1 ex., Split, Solin, IV.1928, leg. Heberdey (NHMW); 2 exs., Split, II.1907, leg. Novak (MCSNM); 16 exs., Split, leg. Apfelbeck, Hauser, Karaman, Merkl, Schatzmayr (HNHM, NHMW); 2 exs., Osor ["Ossero", 44°42N, 14°24E], 9.IV.1914 (MCSNM); 1 ex., Krivosije [44°25N, 15°56E], leg. Paganetti (NHMW); 10 exs., Metkovi, leg. Formanek, Kniz, Paganetti (NHMB, NHMW, cBor, cAss); 2 exs., Gravosa [42°40N, 18°05E], IV.1905, leg. Wagner (ZIN); 7 exs., Bokanjac ["Boccagnazzo"], leg. Novak, Schatzmayr, etc. (MCSNM, NHMW, cAss); 1 ex., Bokanjac, IV.1926 (NHMB); 1 ex., Preloščica, 26.III.1921 (MCSNM); 1 ex., Drijeno ["Drieno"] [ca. 42°40N, 18°11E], leg. Paganetti (NHMW); 1 ex., Rijeka, leg. Woerz (NHMW); 1 ex., Monte Vipera [42°59N, 17°08E], leg. Müller (MCSNT); 1 ex., Gruz ["Gravosa", 42°39N, 18°05E], 14.III.1915 (MCSNM); 2 exs., Pridvorje [42°33N, 18°21E], leg. Reitter (IRSNB); 27 exs., "Dalmatia", etc. (DEI, HNHM, IRSNB, MCSNM, MHNG, MNHUB, NHMW, SMTD); 1 ex., "Illyrie" (IRSNB). – Locality not identified, not specified, or illegible: 1 ex., "Konaroski dvori", above Ljuta spring, 27.V.1972, leg. Dragutin (NHMW); 2 exs., "Halma" (NHMW); 1 ex., locality illegible (HNHM); 1 ex., "Sv. Ilija, Orebić, Peninsula Pelječar" (?), 12.IX.1970, leg. Dragutin (NHMW); 2 exs., "Illyrie" (IRSNB).

Bosnia-Herzegovina – 1 ex., Neum, 4.V.1988, leg. Poot (cWun); 1 ex., Neum (HNHM); 40 exs., Mostar, leg. Apfelbeck, Scheibel, Zoufal (HNHM, MHNG, MNHUB, NHMW, SMNS, cAss); 17 exs., Trebinje (HNHM, MHNG, NHMW, SMTD); 1 ex., Trebinje, Grab, leg. Apfelbeck (NHMW); 2 exs., Trebinje, Gorica (DEI); 4 exs., Hrasno [44°08N, 17°51E], 1902, leg. Apfelbeck (HNHM, cAss); 1 ex., Žitomislići (HNHM); 3 exs., Ljubinje (HNHM); 4 exs., Duzi, leg. Holdhaus (NHMW); 1 ex., Bogavine [= Bugovina?], leg. Paganetti (NHMW); 1 ex., Nevesinje, leg. Hoffmann (NHMW); 1 ex., Gacko (NHMW); 2 exs., Sarajevo (NHMW, cAss); 1 ex., Tukalska Bjelina, leg. Winkler (MHNG); 3 exs., "Herzegowina" (NHMW); 5 exs., "Bosnia, Lubinje" (MNHUB).

Montenegro – 69 exs., Herzeg-Novi, leg. Holdhaus, Kaufmann, Paganetti, Reitter, Woerz (DEI, HNHM, IRSNB, MCSNT, MHNG, MNHUB, NHMW, SMTD, ZIN); 1 ex.,

Herzeg-Novi, 2.V.1929, leg. LIEBMANN (DEI); 1 ex., Zelenika, 2.X.1928, leg. LIEBMANN (DEI); 4 exs., Zelenika, leg. CHYZER, PAGANETTI (HNHM, MNHUB, SMTD); 14 exs., Kameno, leg. PAGANETTI, etc. (IRSNB, MHNG, NHMB, NHMW, SMNS); 1 ex., Podgorica (HNHM); 10 exs., Radostak [42°30N, 18°34E], leg. HOLDHAUS, PAGANETTI (NHMB, NHMW, cAss); 2 exs., Rijeka Crnojévica, IV.1905, leg. APFELBECK (NHMW); 5 exs., Krivosije [ca. 42°32N, 18°32E], leg. PAGANETTI (HNHM, NHMW, SMNS, cAss); 14 exs., Kotor ["Bocche di Cattaro"] (DEI, MHNG, MNHUB, NHMW, SMTD, cAss); 2 exs., Kotor, III.1916 (MNHUB).

Macedonia – 1 ex., Bogovinje ["Begovine"] (NHMB).

Albania – 3 exs., Maj'e Tartarit, V.1931, leg. WINKLER (NHMW, cAss); 2 exs., Lumi i Dukatit [40°18N, 19°30E], V.1931, leg. WINKLER, LONA, BISCHOFF (MHNG, cAss); 1 ex., Scutari, 20.V.1914 (MCSNM); 3 exs., Vlorë, leg. v. OERTZEN (MNHUB); 1 ex., locality illegible (IRSNB).

Greece – Greece mainland: 2 exs., Platanoússa, Xerovuni [39°24N, 20°59E], 900–1000 m, 14.–15.V.1932 (NHMW); 1 ex., Ipiros, Aghios Komasos, 25.IV.1973, leg. LÖBL (cAss); 1 ex., Ipiros, Párga, V.1979, leg. DE ROUGEMONT (cRou); 2 exs., Athína (MNHNP); 3 exs., Attika, leg. REITTER (HNHM); 1 ex., Pieria, Katerini, 15.V.1976, leg. MARGGI (MHNG); 1 ex., Thessalia, Pílion, Argalasti, III.1981, leg. WUNDERLE (cWun); 1 ex., Pílion, Horton [??], 25.III.1981, leg. WUNDERLE (cWun); 1 ex., Pílion, 3 km S Zagora, 450 m, oak and chestnut forest, 3.IV.1998, leg. WUNDERLE (cWun); 12 exs., Pílion, Volos (NHMW, cAss); 2 exs., Pílion, E Afissos, under stones, 10.IV.2004, leg. VIT (cAss); 2 exs., Pílion (NHMW); 1 ex., "Thessalia" (MHNG); 1 ex., Parnássos, road to ski resort, 38°34'N, 22°34'E, 1730 m, montane meadow, 15.IV.2000, leg. WUNDERLE (cWun); 9 exs., Parnássos, 13.IV.1981, leg. TRONQUET (cTro, cAss); 1 ex., Parnássos, leg. v. OERTZEN (NHMW). – Corfu: 1 ex., Gasturi, 22.IV.1935 (NHMW); 8 exs., Val di Ropa (DEI, MHNG, MNHUB, NHMB, NHMW); 1 ex., Canone (NHMW); 36 exs., locality not specified (HNHM, IRSNB, MHNG, MNHNP, MNHUB, NHMW, SMTD). – Levkás: 2 exs., Apolpena, 100 m, 29.IX.1993, leg. ASSING (cAss). – Kephallinia: 3 exs., Enos, 800–1100 m, 10.X.1992, leg. SPRICK (cAss); 1 ex., Enos, 1000–1600 m, 10.–13.V.1929, leg. BEIER (NHMW); 2 exs., Rudi, 800 m (NHMW); 14 exs., locality not specified (DEI, HNHM, MHNG, NHMW); 4 exs., Megalovuno, 1908, leg. HILF (NHMW); 1 ex., Megalovuno, 1905, leg. LEONHARD (DEI); 1 ex., Eleutherios pass, 1905, leg. LEONHARD (NHMW). – Kálamos: 1 ex., Kálamos [38°37N, 20°55E], 21.V.1933, leg. BEIER (NHMW). – Zákinthos: 1 ex., Kalamaki, 1909, leg. HILF (cAss); 1 ex., Keri, leg. HICKER (NHMW); 2 exs., Vrachiona, 21.VIII.1936 (NHMW, cAss); 1 ex., Limni Makry, leg. HICKER (NHMW). – Lesbos: 1 ex., Mitilíni, IV.1940, leg. KULZER (cAss). – Ándros: 3 exs., Kowari Oros, leg. v. OERTZEN (MNHUB, cAss). – Skyros: 1 ex., Linariá, V.1926, leg. HOLTZ (MNHUB). – Pelopónnisos: 1 ex., Patras, olive grove, under stone, 29.III.1986, leg. ASSING (cAss); 1 ex., Patras, near university, 8.IV.1986, leg. ASSING (cAss); 1 ex., Patras env., Miha, 900 m, 30.III.1986, leg. ASSING (cAss); 1 ex., Patras, Kolonos, 1000 m, pasture, 28.III.1985, leg. SPRICK (cAss); 1 ex., Mani, Disou, 150 m, 28.III.1992, leg. FRISCH (MNHUB); 1 ex., Vahos, 200 m, 28.III.1992, leg. FRISCH (cAss); 2 exs., Tripolis, Manaris, 800 m, 2.IV.1992, leg. KARNER (cAss); 4 exs., Panahaiko, Ano Kastritsi, 900 m, 38°15'54N, 21°50'42E, 900 m, 28.III.1997, leg. ASSING, ZERCHE (DEI, cAss); 2 exs., Erimanthos, above Kalendzi, 37°56'38N, 21°46'30E, 27.III.1997, leg. ASSING, ZERCHE (DEI, cAss); 3 exs., Kalendzi, 8.VI.1991, leg. LEDOUX (cTro); 1 ex., Chelmos, 1600 m, 3.VI.1986, leg. NOVAK (NHMW); 1 ex., Olympia, 1.IV.1986, leg. ASSING (cAss); 1 ex., Olympia (IRSNB); 2 exs., Taygetos, V.1935, leg. MAŘAN (cBor); 1 ex., Taygetos, Kalamata, Elehohori, 600 m, 4.IV.1989, leg. DACCORDI (cZan); 6 exs., Taygetos, 12 km SW Mistras, Anavríti, 750 m, oak leaf litter, 29.IV.1999, leg. WOLF (cSch, cAss); 1 ex., Taygetos, Anavríti, 1100–1700 m, 20.–21.VI.1997, leg. WINKELMANN (cSch); 1 ex., Anavríti, stream bank, V.1961, leg. KÜHNELT (NHMW); 1 ex., same data, but IV.1961 (NHMW); 3 exs., Anavríti, near snow, 29.IV.1961, leg. KÜHNELT (NHMW); 2 exs., Taygetos, 12 km SW Mistras, Anavríti, 750 m, 29.IV.1999, leg. BRACHAT (cAss); 7 exs., Taygetos, Anavríti, 750 m, IV.1999, leg. WACHTEL (cAss); 2 exs., Taygetos, pass between Kalamata and Sparta, 1200–1500, 12.IV.1970, leg. HEINZ (cKor); 1 ex., Taygetos, between Paleopanagia and Katafigio, road to Prof. Ilias, 750 m, chestnut and oak leaf litter, 30.IV.1999, leg. WOLF (cSch); 1 ex., Taygetos, road from Paleopangia to Prof. Ilias, 1300 m, under stone, 30.IV.1998, leg. ZERCHE (DEI); 6 exs., Taygetos, leg. BREIT, KNAUTH, KRÜPER (NHMW); 1 ex., Taygetos, IV.1982, leg. KÖSTLIN (SMNS); 1 ex., Arkadia, Langada pass, IV.1999, leg. WACHTEL (cAss); 3 exs., Areópolis, 28.–29.III.1992, leg. KARNER (cAss, cWun); 1 ex., Skala, II.1991, leg. POKO-

RNÝ (cGol); 3 exs., Exochorion, leg. BREIT (NHMW); 5 exs., Sparta (NHMW); 1 ex., Sparta, 30.V.1956, leg. SCHUBERT (NHMW); 2 exs., Yíthion, IV.1956, leg. SCHUBERT (NHMW); 1 ex., Yíthion (NHMW); 1 ex., Rododafni, 31.V.1970, leg. NOVAK (NHMW); 1 ex., Megaspilion, 3.V.1922, leg. LIEBMANN (DEI); 1 ex., Parnon, Vamvakou, 950–1200 m, leg. MUCHE (MHNG); 1 ex., Koúmani ["Cumani", 36°47N, 22°20E], leg. BRENSKE (MNHUB); 1 ex., Ayios Vlasi [37°37N, 23°10E], leg. BRENSKE (MNHUB); 1 ex., Ilia, Kástron, 5–10 m, 28.IX.–3.X.2002, leg. WOLF (cSch); 1 ex., locality not specified (NHMW). – Locality not specified: 5 exs., "Graecia" (DEI, ZIN).

Turkey – Antalya: 5 exs., Alanya, 12 km W Güzelbag, 4.IV.1996, leg. WEIGEL (NME, cAss); 1 ex., Manavgat-Side, III.1997, leg. WINKELMANN (cAss); 2 exs., 18 km SE Gazipaşa, 27.IV.1978, leg. BESUCHET & LÖBL (MHNG, cAss). – Konya: 4 exs., Akşehir env., 26.–29.IV.1960, leg. RESSL (NHMW, cAss); 7 exs., same data, but 4.–16.V.1960 (NHMW); 1 ex., Akşehir, 1900, leg. KORB (MNHUB); 2 exs., Sertavul Geçidi, 1500–1600 m, 28.IV.1978, leg. BESUCHET & LÖBL (MHNG, cAss). – Mersin: 1 ex., N Anamur, 36°13′N, 32°51′E, 350 m, 17.V.2000, leg. MEYBOHM & BRACHAT (cAss); 1 ex., Anamur, Abanoz, 36°21′N, 32°56′E, 1240 m, 19.V.2000, leg. MEYBOHM (cAss); 11 exs., road from Silifke to Gülnar, 36°23′N, 33°50′E, 430 m, pine forest, under stones, 27.XII.2000, leg. ASSING, WUNDERLE (cAss, cWun); 2 exs., same data, but 36°21N, 33°46E, 750 m, 6.V.2004, leg. MEYBOHM & BRACHAT (cAss); 3 exs., Çamlıayla ["Namrun"], 11.–26.V.1960, leg. SCHUBERT (NHMW, cAss); 4 exs., Mersin-Yeniköy, 650 m, 29.IV.1978, leg. BESUCHET & LÖBL (MHNG); 1 ex., same data, but 20.VI.1975 (NHMW).

Iran – 1 ♂, Azarbaigan e Garbi, 33 km W Mahabad, 1700 m, 14.V.2002, leg. SAMA (SMNS).

Locality ambiguous, illegible, not identified, or not specified – 1 ex., "Stagno gr. APFELBECK" (HNHM); 16 exs. (DEI, MCSNT, MHNG, NHMB, SMTD, ZIN); 1 ex., "Weg zur Okoquelle", 12.V.1903.

Doubtful – 1 ♀, "Kreta, PAGANETTI" (NHMW); 2 exs., "Austria, PAGANETTI" (MNHUB); 1 ex., "Autriche" (IRSNB); 1 ex., "Tirol", leg. EPPELSHEIM (MNHUB).

Evidently mislabelled – 1 ex., "Sardinia, Capiomf." (NHMW); 1 ex., München env., Grünwald, 23.IV.1966, leg. GROSS (SMNS); 1 ex., "Calab. Gerace PAGANETTI" (SMTD).

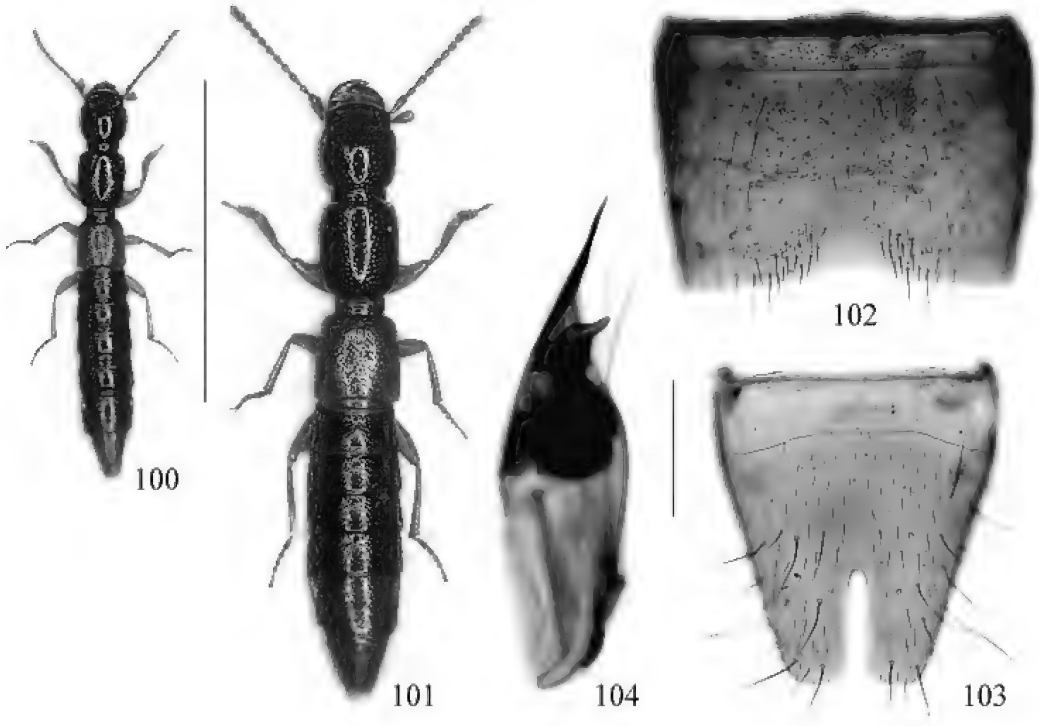
Comments

The original description of *Dolicaon illyricus* Erichson is based on an unspecified number of syntypes, three of which (two males and one female) were found in the collections of the MNHUB. In order to stabilise the name, the male in better condition is here designated as the lectotype.

According to COIFFAIT (1969), *L. i. moreum* is "très distinct" from the nominal subspecies by some external characters (head shape: "un peu plus ovales, à angles postérieurs plus effacés", coarser puncturation of abdomen). In the description of *L. ionicum*, BORDONI (1984) states that the species is distinguished from *L. illyricum* by a more slender head, a more slender pronotum, shorter elytra, and a different coloration of the abdominal apex. An examination of the types and numerous additional specimens from various localities revealed, however, that the types of *L. ionicum* and *L. illyricum moreum* are within the range of intraspecific variation of *L. illyricum*, both regarding the external characters and the shape of the aedeagus, and that there is no evidence of the presence of different subspecies; hence the synonymies indicated above.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 440): HL: 0.93–1.61, 1.26; HW: 0.89–1.50, 1.16; PW: 0.91–1.47, 1.18; PL: 1.07–1.71, 1.36; EL: 0.64–1.13, 0.92; TiL: 0.80–1.34, 1.02; TaL: 0.68–1.17, 0.87; AL: 1.44–2.10, 1.83; TL: 6.1–10.9, 8.4; HL/HW: 0.98–1.15, 1.08; PW/HW: 0.95–1.17, 1.02; PL/PW: 1.01–1.24, 1.15; EL/PL: 0.58–0.75, 0.67; TiL/TaL: 0.84–1.35, 1.18.



Figs. 100–104. *Leptobium illyricum* (Erichson). – **100–101.** Habitus of a very small and a very large specimen. – **102.** Male sternite VII. – **103.** Male sternite VIII. – **104.** Aedeagus in lateral view (Croatia). – Scale bars: 5 mm (100–101), 0.5 mm (102–104).

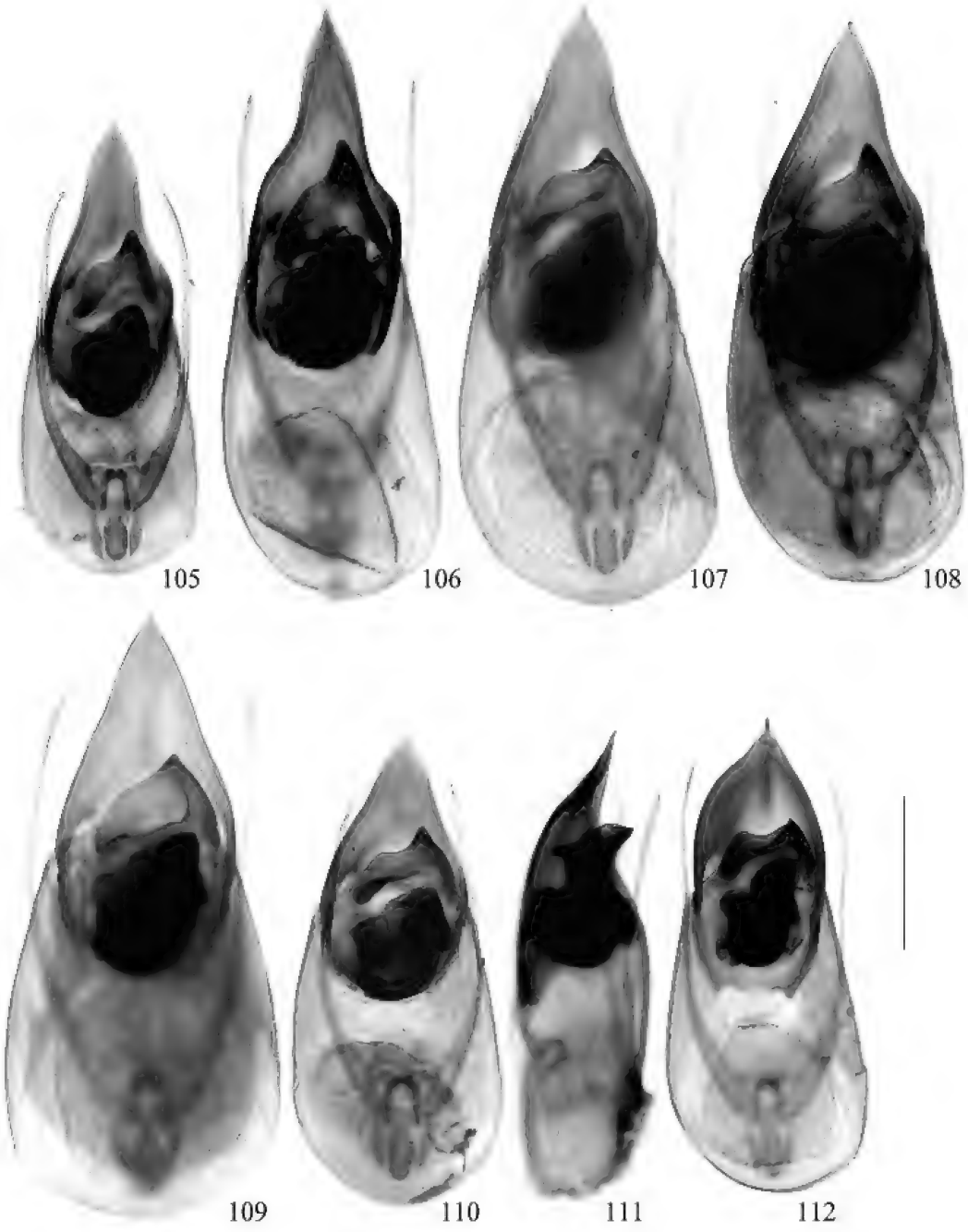
Habitus as in Figs. 100–102. Very variable species. Head, pronotum, and abdominal segments III–VI blackish; occasionally, anterior half of abdominal segment VII infuscated to various extents; elytra, abdominal segments VII–X, and antennae rufous; legs yellowish brown.

Head more or less distinctly oblong (see ratio HL/HW); posterior angles weakly marked; puncturation usually moderately sparse, interstices usually wider than diameter of punctures; microsculpture absent; eyes of variable size, usually approximately half the length of temples in dorsal view or slightly larger, rarely larger and 0.7–0.8 times as long as temples in dorsal view. Antennae with antennomere I about 2.5 times as long as wide, II little more than half the length of I, III about of intermediate length between I and II, IV and V weakly oblong, VI usually about as long as wide, X weakly transverse, and XI of ovoid shape, about 1.5 times as long as X.

Pronotum more or less distinctly oblong and approximately as wide as head (see ratios PW/HW, PL/PW); puncturation similar to that of head or slightly denser; midline impunctate; microsculpture absent.

Elytra slightly wider and at suture distinctly shorter than pronotum, but length rather variable (see ratio EL/PL); puncturation of similar density as that of pronotum, but less well-defined. Hind wings absent. Legs of moderate length (see measurements).

Abdomen subparallel, slightly wider than elytra, widest at segment VI; puncturation of segments III–VI denser and usually somewhat finer than that of pronotum, punctures near anterior tergal margins coarser than near posterior tergal margins;



Figs. 105–112. *Leptobium illyricum* (Erichson), aedeagus in ventral and in lateral view. – **105.** Croatia. – **106.** Greece, Pelopónnisos (Taygetos). – **107.** Croatia. – **108.** Greece, Kephallinia. – **109.** Croatia. – **110.** Bosnia (Mostar). – **111–112.** Greece, Pelopónnisos (Panahaiko). – Scale bar: 0.5 mm.

puncturation of tergite VII sparser and finer than that of anterior tergites; puncturation of tergite VIII very sparse and very fine; posterior margin of tergite VII with or without indistinct rudiments of a palisade fringe.

♂: protarsomeres I–IV distinctly dilated, but only slightly more so than in ♀; sternite VII weakly modified, with weakly concave posterior margin and in posterior median area slightly depressed, pubescence unmodified (Fig. 102); sternite VIII not distinctive (Fig. 103); dorsal plate of aedeagus long, slender, apically and dorsally with distinct median carina; ventral process more or less distinctly asymmetrical (Figs. 104–112).

Intraspecific variation

Max/min ratios: HL: 1.73; HW: 1.70; PW: 1.63; PL: 1.60; EL: 1.77; TiL: 1.67; TaL: 1.73; AL: 1.46; HL/HW: 1.17; PW/HW: 1.23; PL/PW: 1.23; EL/PL: 1.29; TiL/TaL: 1.60.

External characters such as size, head shape, and puncturation, but also the size of the aedeagus and the shape of its apex are subject to enormous intraspecific variation, the ratio of the maximum divided by the minimum measurement for most size parameters being between 1.6 and 1.8 in one dimension (see ratios above)! This means that an extremely large specimen is approximately five times as heavy and voluminous as an extremely small specimen (Figs. 100, 101). The smallest specimens were found in material from Croatia (especially Split, Zadar, Bokanjac), the Pelopónnisos, the Greek islands, and also from Turkey, whereas the largest specimens came from Turkey, the Greek mainland, and Croatia (Fig. 113). The variability of relative elytral length is enormous, but apparently not clinal. An analysis of body shape, here referred to as "slenderness", revealed that specimens from the Greek islands, the Pelopónnisos, and from Turkey are more slender (i. e. have a more oblong

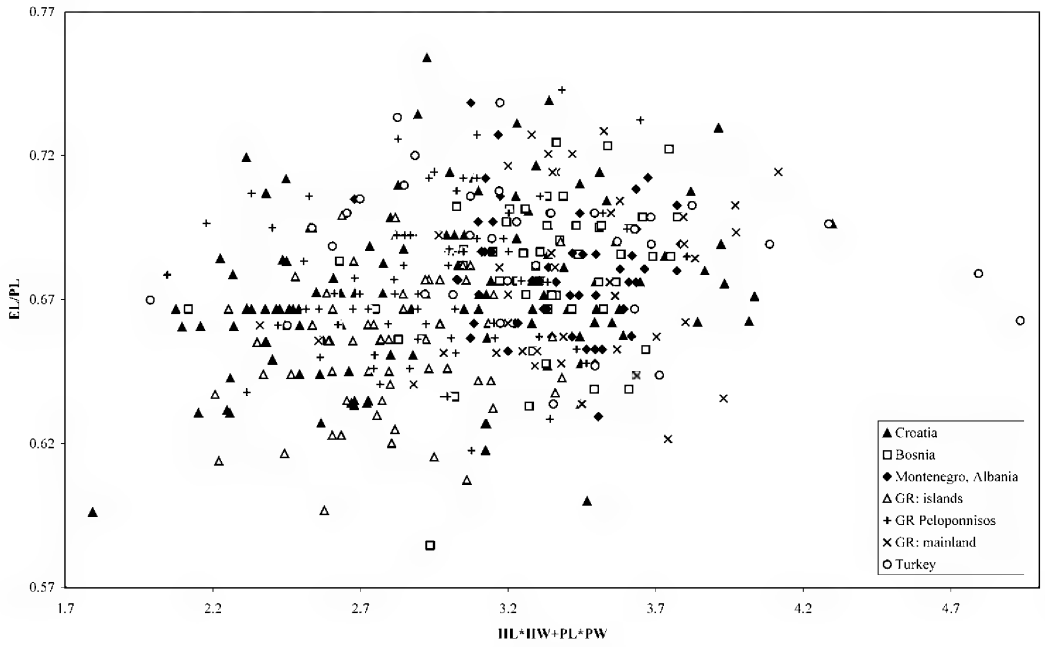


Fig. 113. *Leptobium illyricum* (Erichson). Relative elytral length in relation to body size (see chapter 2).

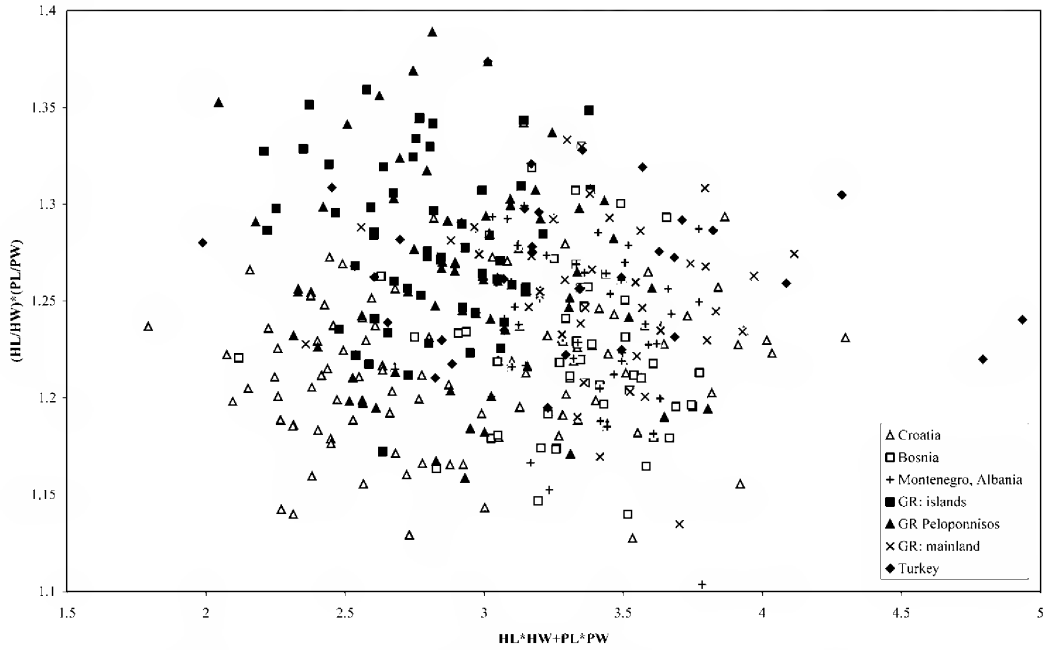


Fig. 114. *Leptobium illyricum* (Erichson), body shape. "Slenderness" of head and pronotum in relation to body size (see chapter 2).

head and pronotum) and that beetles from Bosnia and Croatia are, on average, of more compact build (Fig. 114). Material from Zadar in Croatia is characterised by conspicuously coarse and dense puncturation of head and pronotum, as well as by large eyes. In specimens from Turkey, the head is often relatively wide, with its width exceeding that of the pronotum.

Size variation of the aedeagus is mainly allometric; the largest aedeagi were observed in material from Turkey, the Greek mainland, and from Croatia (Fig. 115). The degree of variability of the aedeagal shape is particularly striking. The dorsal plate may be very long and slender with more or less straight lateral margins in ventral view (Figs. 105, 106), or very short and broad, either with straight or with sinuate lateral margins (Figs. 110–112). The shape of the ventral process, too, is highly variable; it may be almost oblong (Fig. 106) or distinctly transverse (Figs. 107, 110, 112). Clear geographic trends were not observed; aedeagi with long and slender dorsal plates occur in Croatia (especially Split, Zadar, Bokanjac), southern Greece, and Turkey, and, on the other hand, aedeagi both with very slender and with very broad dorsal plates were found in males from Croatia. The extreme conditions are linked by every possible transitional state, so that they are interpreted as an expression of intra- rather than interspecific variation. However, the situation is slightly more difficult with the population from the Panahaiko (Greece: northern Pelopónnisos). The two males available from this locality have an identical aedeagus, so that the shape is not the result of a teratological malformation. The aedeagus (Figs. 111, 112) is distinguished from that of all other populations examined by the strongly rounded lateral margins of the dorsal plate; I have not seen any transitional conditions. Nevertheless, in view of the enormous general variability of aedeagus shape and especially of the unlikelihood of a distinct species restricted to a single mountain range in an

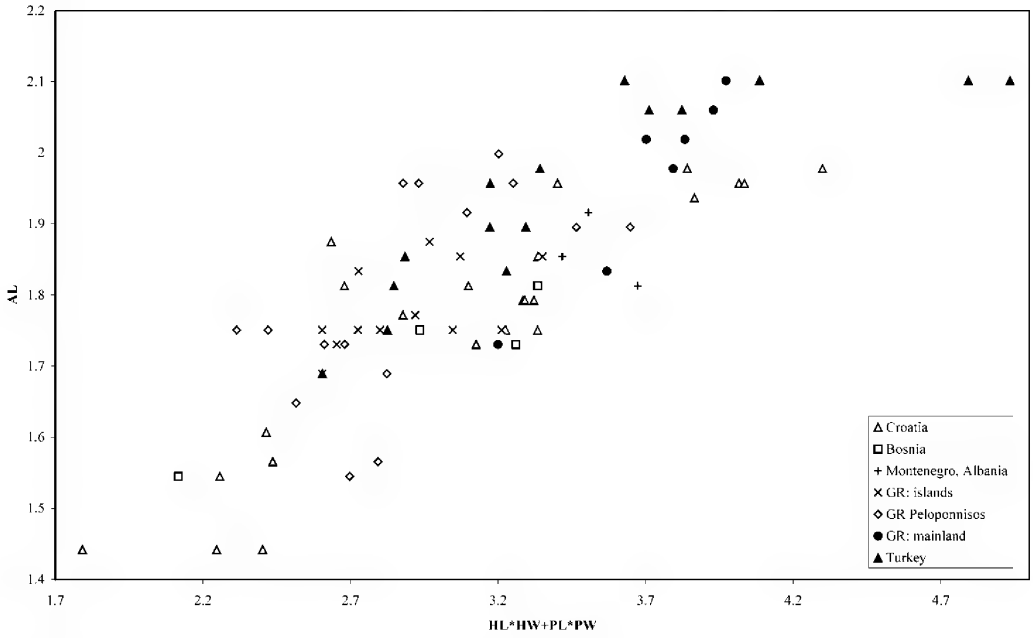


Fig. 115. *Leptobium illyricum* (Erichson). Aedeagus length in relation to body size (see chapter 2).

area where *L. illyricum* is rather common (Fig. 117), the aedeagus differences are here attributed to intraspecific variation.

Comparative notes

In the Balkans, *L. illyricum* is separated from other species of the genus by its size and coloration alone. In Turkey, however, where other congeners of similar size and coloration occur (*L. syriacum*, *L. wunderlei*), a reliable identification is possible only based on the shape of the aedeagus.

Distribution and bionomics

Leptobium illyricum is one of the more widespread brachypterous species of the genus. It has a Ponto-Mediterranean distribution, with the vast majority of records from the region between Slovenia in the northwest and central southern Anatolia in the southeast. The single record from Iran shows that the range extends much further to the east than was previously known (Fig. 116). It seems remarkable that *L. illyricum*, although brachypterous, is present on a great number of islands, but has a very patchy distribution e. g. in mainland Greece (Fig. 117). These data suggest that the distribution of the species is a relict distribution predominantly resulting from extinctions rather than colonisations. However, too little is known about the habitat requirements of the species to be able to fully explain the zoogeography of *Leptobium* species. For more records see Coiffait (1970), Novak (1952), and Scheerpeltz (1974).

Leptobium illyricum has been found in various types of unforested habitats such as meadows and other grassland, macchia, and arable land, but it may also occur in forests (pine, chestnut, oak), if the trees are distant enough to allow for some grass

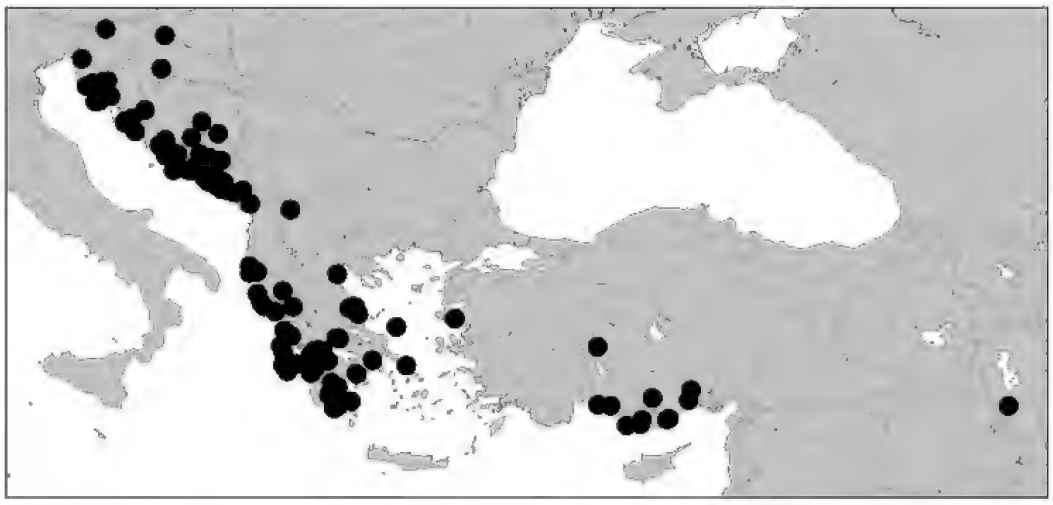


Fig. 116. Distribution of *Leptobium illyricum* (Erichson), based on revised records.

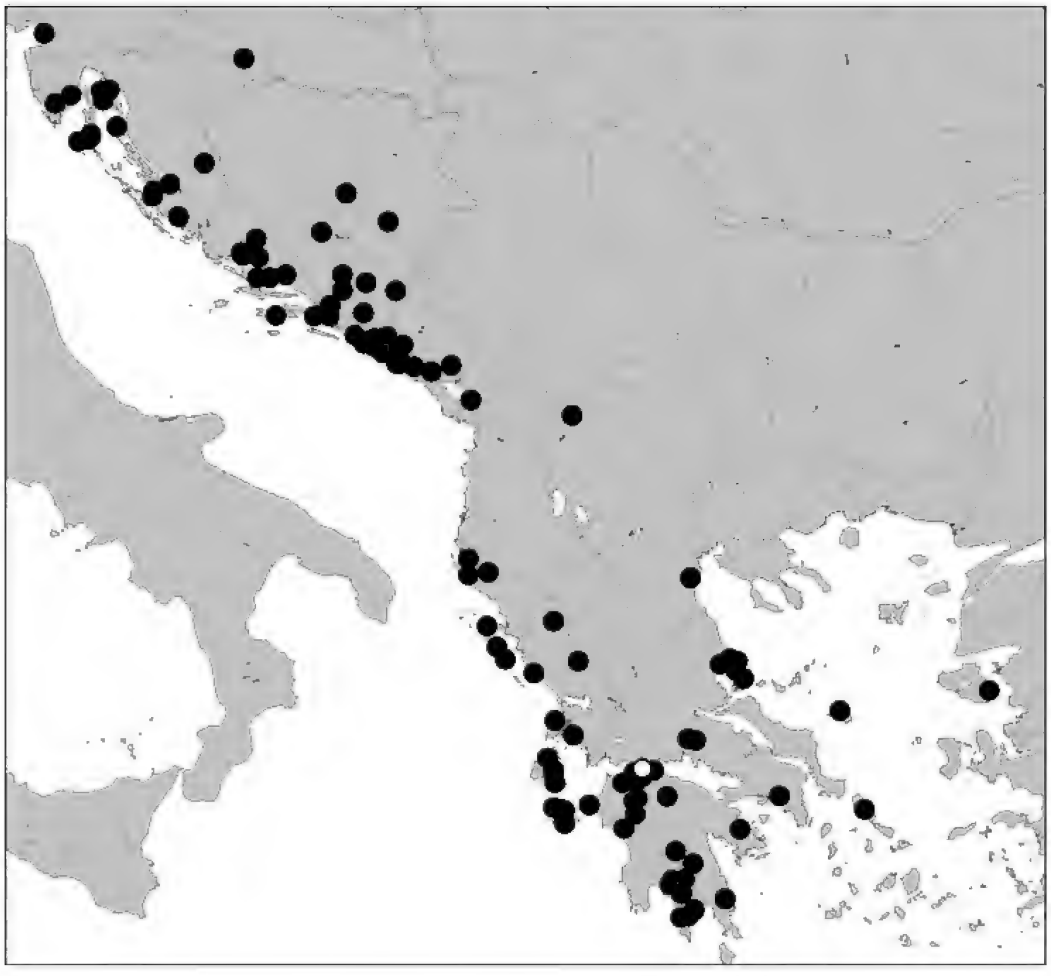


Fig. 117. Distribution of *Leptobium illyricum* (Erichson) in the Balkans, based on revised records (○ = record from Panahaiko).

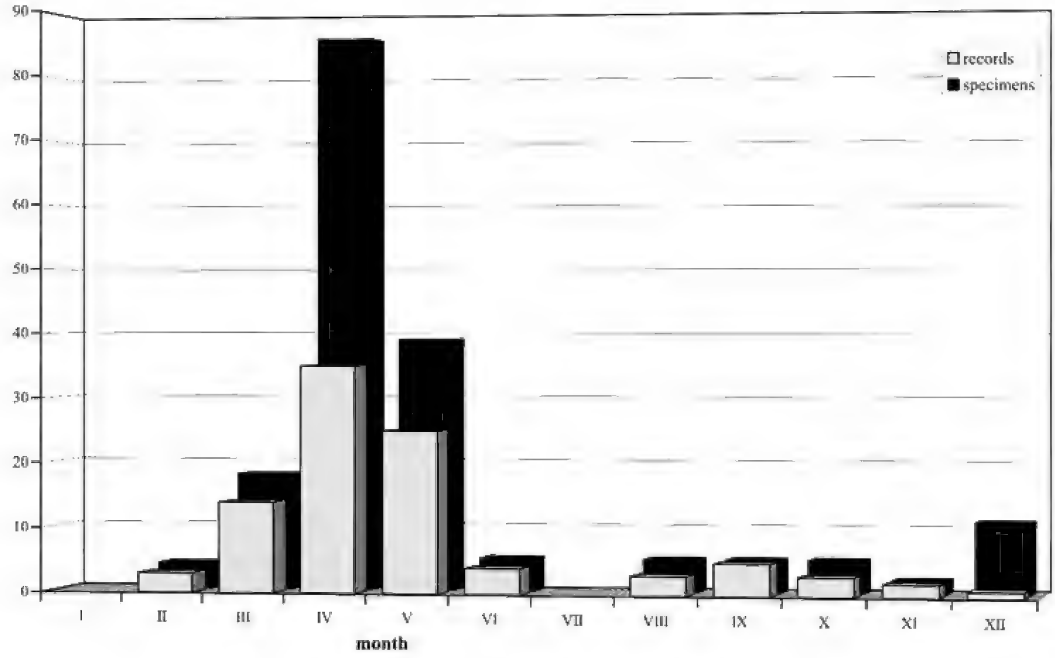


Fig. 118. *Leptobium illyricum* (Erichson). Seasonal distribution of the examined specimens (black bars) and samples/records (grey bars).

undergrowth. The species occurs mostly at lower to intermediate altitudes, from sea-level up to 1600 m. Adult beetles have been found almost throughout the year, except for January and July, with a maximum in spring – especially April, but also March and May; there are only relatively few records from the second half of the year (Fig. 118).

3.13 *Leptobium wunderlei* Bordoni, 1994 (Figs. 119–121, 126)

Leptobium wunderlei; Bordoni (1994: 29f.).

Types examined

Holotype ♂: 1.1.–7.1.91, SW-TÜ, Umg. Manavgat, Kiselot, leg. P. Wunderle / Holotypus / *Leptobium wunderlei* n. sp. Bordoni det. 92 (cWun). – Paratypes: 1 ♂, 1 ♀, same data as holotype (cWun, cAss).

Additional material examined (total, including types: 22 exs.)

Turkey – Antalya: 1 ex., Gündogmus, 6.V.1987, leg. Lundberg (cWun); 3 exs. [1 ex. teneral], 22 km W Alanya, Avsallar near Incekum, 9.–23.V.1995, leg. Pütz (cPüt, cAss); 2 exs., 15 km NE Manavgat, 50 m, floodplain of Karpuzcay river, 7.XI.2001, leg. Luckow (cGol, cAss); 1 ex., 3 km N Manavgat, 36°50N, 31°29E, 15 m, floated from moist pit, 20.III.2002, leg. Rose (cRos); 5 exs., Akseki, Güçlüköy, 600 m, under stones on terraced land, 14.III.2000, leg. Rose (cEss, cRos, cAss); 1 ex., 20 km S Akseki, 36°48N, 31°46E, 590 m, under stones, 19.III.2002, leg. Rose (cRos); 1 ex., Akseki, 21.III.2002, leg. Esser (cEss); 1 ex., Alanya, 15 km E Manavgat, Karpuzcay, 36°44N, 31°36E, 10 m, under stones, 21.III.2002, leg. Rose (cAss); 2 exs., Alanya, 12 km W Payallar, 100 m, 31.III.1996, leg. Hartmann (NME, cAss); 2 exs., Alanya, W Güzelbag, 30.III.1996, leg. Weigel (NME); 1 ex., Alanya, 10 km W Payallar, 150 m, 4.IV.1996, leg. Kopetz (cAss); 1 ex., Topraktepe, 200 m, 8.V.1978, leg. Besuchet & Löbl (cAss); 1 ex., 20 km N Manavgat, 26.IV.1978, leg. Besuchet & Löbl (MHNG).

Description

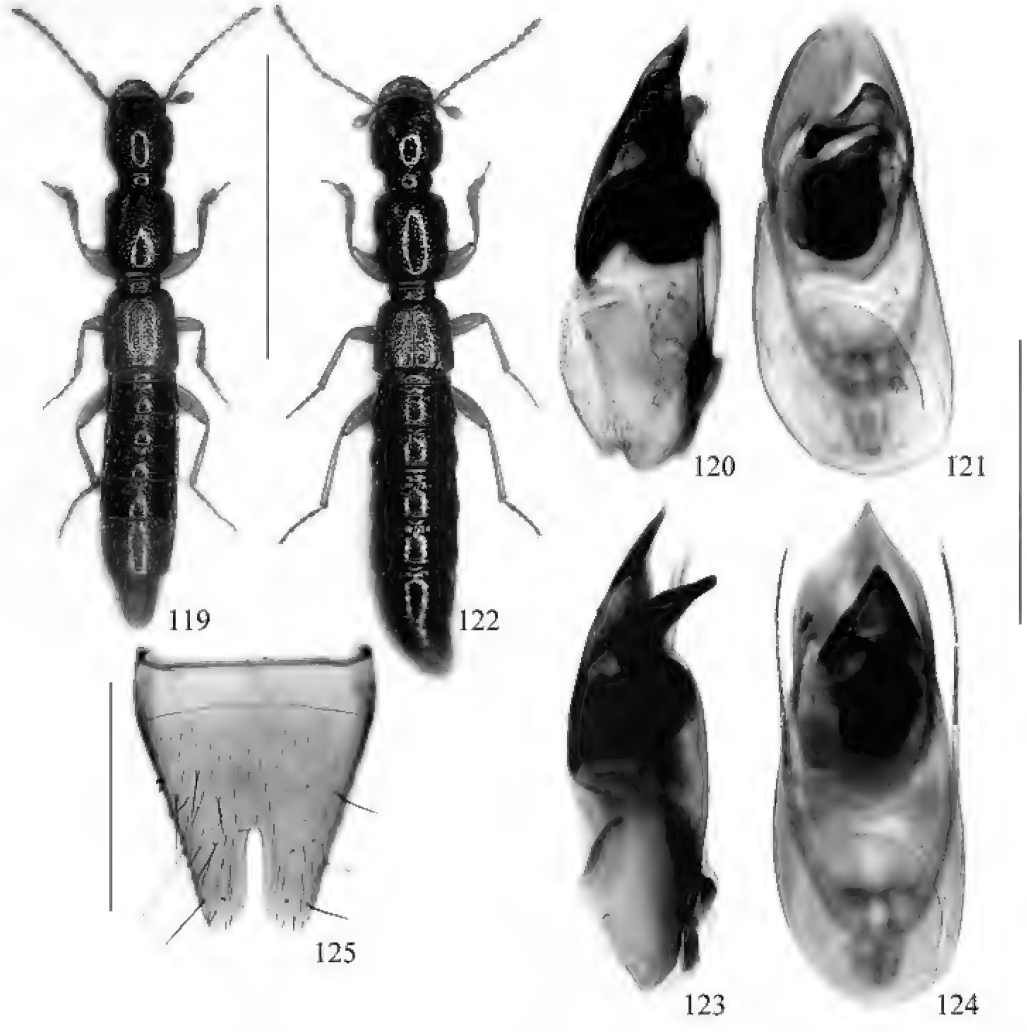
Measurements (in mm) and ratios (range, arithmetic mean; n = 20): HL: 1.15–1.34, 1.26; HW: 1.05–1.26, 1.17; PW: 1.09–1.30, 1.20; PL: 1.28–1.50, 1.41; EL: 0.84–1.09, 0.98; TiL: 1.01–1.17, 1.11; TaL: 0.91–1.07, 0.99; AL: 1.52–1.77, 1.66; TL: 7.9–10.9, 9.5; HL/HW: 1.03–1.12, 1.08; PW/HW: 0.98–1.09, 1.03; PL/PW: 1.13–1.21, 1.17; EL/PL: 0.61–0.75, 0.69; TiL/TaL: 1.02–1.18, 1.11.

Habitus as in Fig. 119. External and male secondary sexual characters as in *L. illyricum*; distinguished only by the morphology of the aedeagus:

♂: aedeagus with broader and shorter dorsal plate and with more transverse ventral process; left (ventral view) margin of dorsal plate with pronounced fold (Figs. 120, 121).

Intraspecific variation

Max/min ratios: HL: 1.16; HW: 1.20; PW: 1.19; PL: 1.18; EL: 1.16; TiL: 1.16; TaL: 1.18; AL: 1.16; HL/HW: 1.09; PW/HW: 1.11; PL/PW: 1.07; EL/PL: 1.22; TiL/TaL:



Figs. 119–125. *Leptobium wunderlei* Bordoni (119–121) and *L. longitibiale* Assing & Wunderle, holotype (122–125). – **119, 122**. Habitus. – **120–121, 123–124**. Aedeagus in lateral and in ventral view. – **125**. Male sternite VIII. – Scale bars: 5 mm (119, 122), 1 mm (120–121, 122–125).

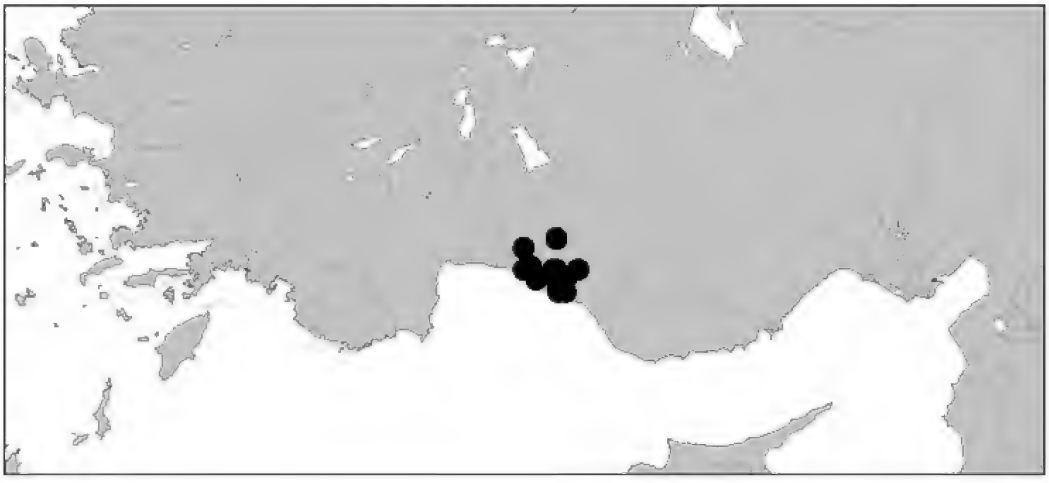


Fig. 126. Distribution of *Leptobium wunderlei* Bordoni in southern Turkey, based on revised records.

1.15. As can be expected with a species with a restricted distribution, intraspecific variation is moderate. The most variable character is the length (both absolute and relative) of the elytra.

Comparative notes

From *L. illyricum* and similar species, *L. wunderlei* can reliably be distinguished only based on the morphology of the aedeagus.

Distribution and bionomics

Leptobium wunderlei is apparently endemic to the surroundings of Alanya and Manavgat in Antalya province, southern Anatolia (Fig. 126). As far as can be inferred from the labels attached to the examined specimens, the species occurs in open habitats (meadows, arable land, floodplain), where it was collected from under stones at lower elevations (sea-level up to 600 m). The material was found in January, March through May, and November. One specimen taken in May is teneral.

3.14 *Leptobium longitibiale* Assing & Wunderle, 2001 (Figs. 122–125)

Leptobium longitibiale; Assing & Wunderle (2001: 35 ff.).

Types examined

Holotype ♂, and two ♀ paratypes: see Assing & Wunderle (2001).

Description

Measurements (in mm) and ratios (range; n = 3): HL: 1.26–1.34; HW: 1.19–1.24; PW: 1.22–1.27; PL: 1.46–1.50; EL: 0.95–0.97; TiL: 1.19–1.30; TaL: 1.05–1.07; AL: 1.75; TL: 9.7–9.9; HL/HW: 1.05–1.08; PW/HW: 1.02–1.05; PL/PW: 1.18–1.20; EL/PL: 0.63–0.65; TiL/TaL: 1.12–1.24.

In general appearance very similar to *L. syriacum* (Fig. 122), but distinguished as follows:

Elytra relatively shorter. Legs, especially metatibiae and metatarsi, longer and more slender (see measurements).

Abdominal tergite VII without palisade fringe.

♂: posterior incision of sternite VIII slightly less deep (Fig. 125); median lobe of aedeagus relatively smaller than in *L. syriacum*, with apically abruptly narrowed, very acute and almost symmetric ventral process; ventral process of almost symmetric triangular shape (Figs. 123, 124).

Comparative notes

From other large species of similar coloration and occurring in the Eastern Mediterranean, *L. longitibiale* is separated especially by the morphology of the aedeagus. The only other brachypterous species present in Cyprus is *L. syriacum*.

Distribution and bionomics

The species appears to be endemic in Cyprus, where it is evidently much rarer than *L. syriacum*. The types were collected in only one locality in the Paphos Forest, where they were sifted from leaf litter in a *Quercus* forest in northern exposition.

3.15 *Leptobium syriacum* (Saulcy, 1864) (Figs. 127–142)

Dolicaon syriacus; Saulcy (1864: 644f.).
Leptobium fageli; Jarrige (1952: 123), **n. syn.**
Leptobium gridellianum; Jarrige (1952: 122), **n. syn.**
Dolicaon (Leptobium) hermonensis; Coiffait (1954: 95ff.), **n. syn.**
Leptobium anatolicum; Coiffait (1972: 149f.), **n. syn.**
Leptobium waldeni; Bordoni (1990: 1ff.), **n. syn.**

Types examined

L. fageli: Holotype ♂: see Assing & Wunderle (2001).

L. gridellianum: Holotype ♂: Adana, Turquie / Type / Museum Paris, Ex Collection J. Jarrige / *Gridellianum* Jarr. / Holotypus *Leptobium gridellianum* Jarrige rev. V. Assing 2003 / *Leptobium syriacum* (Saulcy) det. V. Assing 2003 (MNHNP). – Paratypes: 2 ♂♂, 2 ♀♀: Adana, As. min. P. Nadar / Paratype (MNHNP); 2 ♂♂, 1 ♀: Adana, Cilicie (MNHNP).

D. hermonensis: Holotype ♀ [teneral]: Chebea, XI.51, Hermon, H. Coiffait / Museum Paris coll. H. Coiffait / Holotype / *Leptobium hermonensis* Coiff. H. Coiffait det. 1954 / *Leptobium syriacum* (Saulcy) det. V. Assing 2003 (MNHNP). – Paratype ♂ [teneral]: same data as holotype, but labelled as "Allotype" (MNHNP).

L. anatolicum: Holotype ♂: Diarbekir 932, leg. v. Ajtai / *Leptobium anatolicum* Coiff. H. Coiffait det. 1971 / Muséum Paris 1985 Coll. H. Coiffait / Holotype / *Leptobium syriacum* (Saulcy) det. V. Assing 2003 (MNHNP). – Paratype ♀: same data as holotype, but with label "Allotype" (MNHNP).

Additional material examined (total, including types: 206 exs.;
see also Assing & Wunderle 2001, as *L. fageli*)

Turkey – Mersin: 1 ex., N Anamur, 36°12′N, 32°55′E, 350 m, 7.V.2000, leg. Meybohm (cAss); 2 exs., 15 km NW Erdemli, Arslanlı, 11.–19.V.1994, leg. Hauck (cSch); 1 ♀, Erdemli, 7.–10.V.1965, leg. Schubert (NHMW); 6 exs., Çamlıayla ["Namrun"], 10.V.–3.VI.1963, leg. Schubert (NHMW, cAss); 1 ex., Mersin-Yeniköy, 650 m, 29.IV.1978, leg. Besuchet & Löbl (cAss); 1 ♀, 8 km S Kirobasi, 900 m, 7.V.1997, leg. Schulz, Vock & Sanetra (cAss); 2 exs., Tarsus (IRSNB); 1 ex., road to Arslanköy, 5 km SE Aladağ, 36°55N, 34°32E, 700 m, 2.V.2004, leg. Meybohm & Brachat (cAss). – Adana: 1 ex., N Kozan, 250 m, 11.IV.1988, leg. Heinz (cKor); 2 exs., Ceyhan, Zeytinli, 17.IV.1966 (NHMW, cAss); 1 ♀, Osmaniye, 1.–8.V.1969, leg. Schubert (NHMW); 1 ex., Adana, 2.V.1967, leg. Besuchet (MHNG); 2 exs., E Osmaniye, Yarpuz, 37°04N, 36°24E, 920 m, 30.IV.2004, leg. Besuchet (cAss). – Antakya: 1 ex., 19 km S Antakya, SW Şenköy, 36°01′48N, 36°07′19E, 920 m, oak and laurel litter, 2.IV.2004, leg. Assing (cAss); 2 exs., S Şenköy, 36°01N, 36°07E, 900 m, sifted laurel litter, 26.–27.IV.2002, leg. Brachat & Meybohm (cAss); 7 exs., Kişlak – Şenköy, 800–850 m, 2.V.1976, leg. Besuchet &

LÖBL (MHNG, cAss); 2 exs., Yayladağı, 400–800 m, 7.IV.1978, leg. HEINZ (cKor, cAss); 1 ex., same data, but 600–900 m, 13.IV.1981 (cKor); 1 ex., Yayladağı, 450 m, 16.VII.1973, leg. SCHUBERT (NHMW); 1 ex., N Yayladağı, 35°55N, 36°03E, 440 m, 22.IV.2004, leg. MEYBOHM & BRACHAT (cAss); 1 ex., Harbiye, 300–400 m, 13.IV.1981, leg. HEINZ (cKor); 2 exs., Belen, Issus pass, 18.IV.1966 (NHMW, cAss); 1 ex., N Belen, 36°31N, 36°14E, 1010 m, 23.IV.2004, leg. MEYBOHM & BRACHAT (cAss); 1 ♀, Uluçinar ["Arsuz"], compost, 16.IV.1966 (NHMW); 1 ♀, Nur Dağları, 10 km W Hassa, 1000–1200 m, 11.–12.V.1997, leg. SCHULZ, VOCK & SANETRA (cAss); 3 exs., Akbez, 1891, "Paratype" [of *L. gridellianum*, sic] (MNHNP); 1 ex., Akbez (SMTD). – Gaziantep: 2 exs., between Hassa and Kilis, 800 m, 20.IV.1973, leg. HEINZ (cKor); 2 exs., NW Gaziantep, Karbıyıklı, 1000 m, 5.IV.1983, leg. HEINZ (cKor); 1 ♀, Hasanbeyli, Amanus mts., 14.IV.1966 (NHMW). – Kahramanmaraş: 1 ex., Kahramanmaraş, 19.III.1998, leg. SMRZ (cAss); 2 ♀♀, 34 km SW Kahramanmaraş, 37°22′57N, 36°40′42E, 1070 m, under stones, 12.IV.2004, leg. ASSING (cAss). – Locality not specified or ambiguous: 1 ex., "Taurus Cilic." (DEI); 6 exs., "Turquie" (IRSNB).

Cyprus – 13 exs., locality not specified (IRSNB, MNHNP, MNHUB, NHMW); 4 exs., Kyrenia, XI.1953, leg. BRONDEEL (IRSNB); 1 ex., Larnaca, XI.1953, leg. BRONDEEL (IRSNB); 1 ex. [teneral], Paphos, 25.V.–16.VI., leg. FRANZ (NHMW); 1 ex., Paphos, 3.XII.1988, leg. GRIMM & RACHINSKY (SMNS); 1 ex., Loutra Aphroditi, W Polis, 6.XII.1988, leg. GRIMM & RACHINSKY (SMNS); 1 ex., Yermasoyia river, XI.1965, leg. COMELLINI (MHNG).

Lebanon – 1 ex., Al Mukhtarah ["Moukhtara", 33°39N, 35°37E], 800 m, V.1964, leg. FAGEL (IRSNB); 7 exs., Dahr al Ayn ["Dahr el Ain", 34°11N, 35°43E], 16.X.1951, leg. COIFFAIT (MCSNT, MNHNP, cAss); 2 exs., Cèdres Barouk, 1800 m, 31.III.1975, leg. BESUCHET (MHNG, cAss); 18 exs., Beyrouth (MNHNP, NHMW, cAss); 1 ex., Beyrouth, X.1953, leg. BRONDEEL (IRSNB); 10 exs. [2 exs. teneral], Chekka, 16.VI.1954, leg. COIFFAIT (MNHNP); 1 ex., Dahr al Baydar ["Dahr el Baidar", 33°49N, 35°46E], near Sofar, 1500 m, 2.IV.1975, leg. BESUCHET (MHNG); 5 exs., Dahr al Baydar, 19.XI.1951, leg. COIFFAIT (MNHNP); 1 ex., Tripoli (MNHNP); 4 exs., Bcharre ["Bscherré"], ca. 34°15N, 36°01E, leg. EBNER (NHMW); 1 ex., "Djezin" (SMTD); 2 exs., "H. Etchevera" (MNHNP); 1 ex., locality not specified (IRSNB).

Syria – 1 ex., Al Haffah ["Haffé"] env., Lattaquia, 100–200 m, 1.IV.1982, leg. HEINZ (cKor); 1 ex., 15 km NE Soueida, 800 m, 8.IV.1982, leg. HEINZ (cKor); 1 ex., Djebel Ansariya, 1300–1400 m, 2.IV.1988, leg. HEINZ (cAss); 1 ex., Dimasq, leg. EBNER (NHMW); 1 ex., S Dimasq, Ghaba Ghel, 800 m, 7.IV.1982, leg. HEINZ (cAss); 2 exs., Tartus, 6.IV.1990, leg. REUTER (cFel).

Israel/Syria/Lebanon – 1 ex., N-Golan, Mt. Hermon, 1100–1400 m, 10.IV.1985, leg. HEINZ (cKor); 2 exs., same data, but 1600–1800 m (cKor); 3 exs., Golan, El Rom, 1000 m, 14.VII.1987, leg. HEINZ (cKor, cAss); 2 exs., Golan, Banyas, 500 m, 29.III.1995, leg. SAMA (cZan).

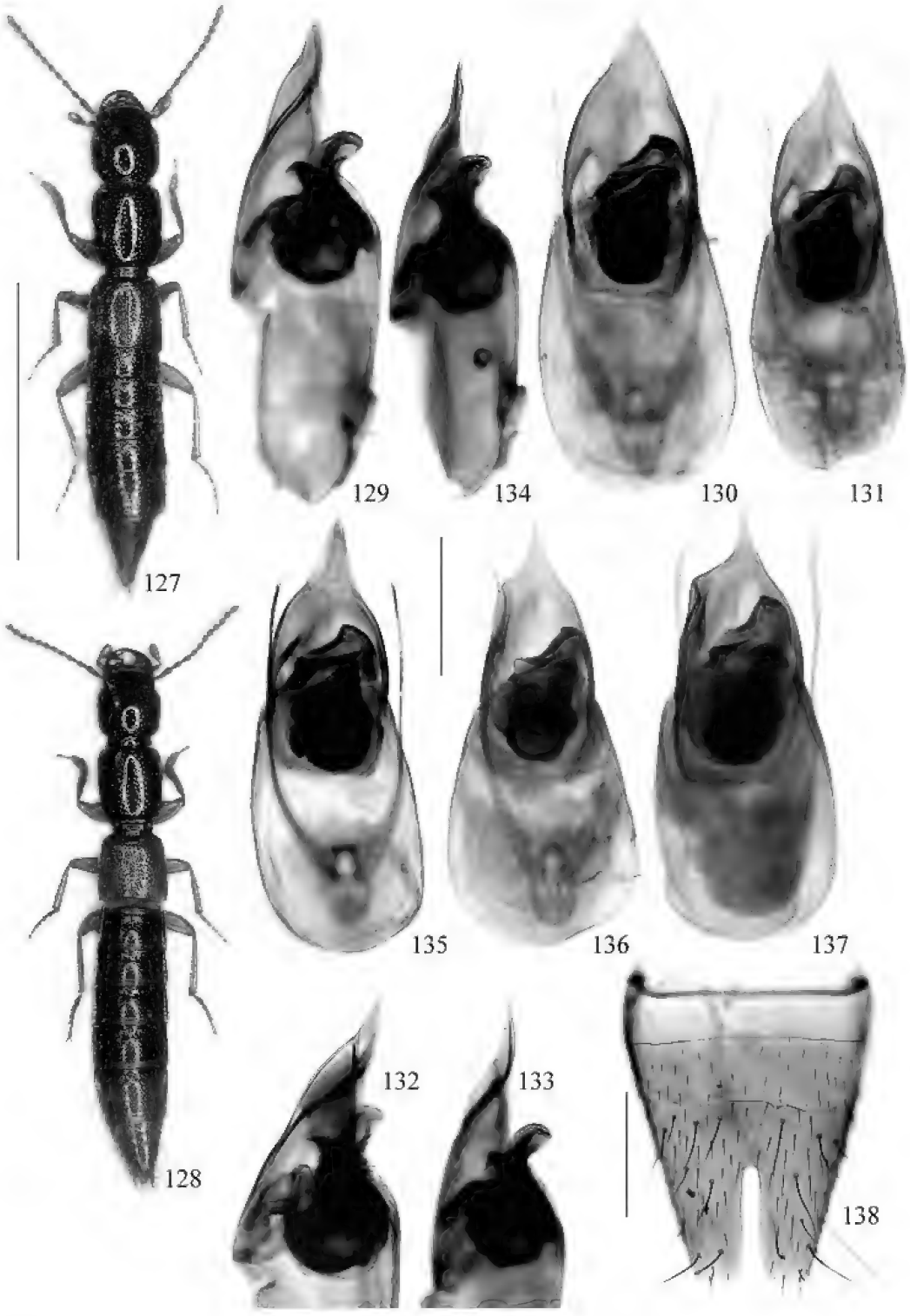
Israel – 1 ex., Haifa ["Caifa"], leg. SIMON (NHMW); 1 ex., SE Haifa, Allonim, 200 m, 7.II.1987, leg. SCHAWALLER & SCHMALFUSS (cAss); 1 ex., Haifa, above Technion, 100 m, 8.–10.II.1987, leg. SCHAWALLER & SCHMALFUSS (SMNS); 1 ex., coast, Mt. Carmel, 100 m, 17.IV.1982, leg. BESUCHET & LÖBL (MHNG).

Locality not identified or not specified – 1 ex., Beytmary, 1878, leg. APPL (NHMW); 2 exs., "Midjaneh" (IRSNB); 2 exs., "Syria" (DEI, NHMB); 2 exs. (IRSNB).

Comments

The holotype of *D. syriacus* Saulcy, a single female from Jerusalem, was looked for, but not found in the collections of the MNHNP. However, several specimens of both sexes collected in various localities in the Middle East and originally deposited in the SAULCY collection were examined. Since they are in agreement with the details indicated in the original description, there is little doubt that the present interpretation is correct.

Both type specimens of *D. hermonensis* are teneral, which explains their uniformly testaceous coloration pointed out by COIFFAIT (1954). In other respects, these specimens were found to be highly similar to *L. syriacum*. Since there is no convincing evidence that they should represent a distinct species, *D. hermonensis* is here synonymised.



Figs. 127–138. *Leptobium syriacum* (Saulcy) from Lebanon (127, 129–133), Cyprus (128, 134–135, 138), and southern Turkey (136–137). – **127–128**. Habitus. – **129–137**. Aedeagus in lateral and in ventral view. – **138**. Male sternite VIII. – Scale bars: 5 mm (127–128), 0.5 mm (129–138).

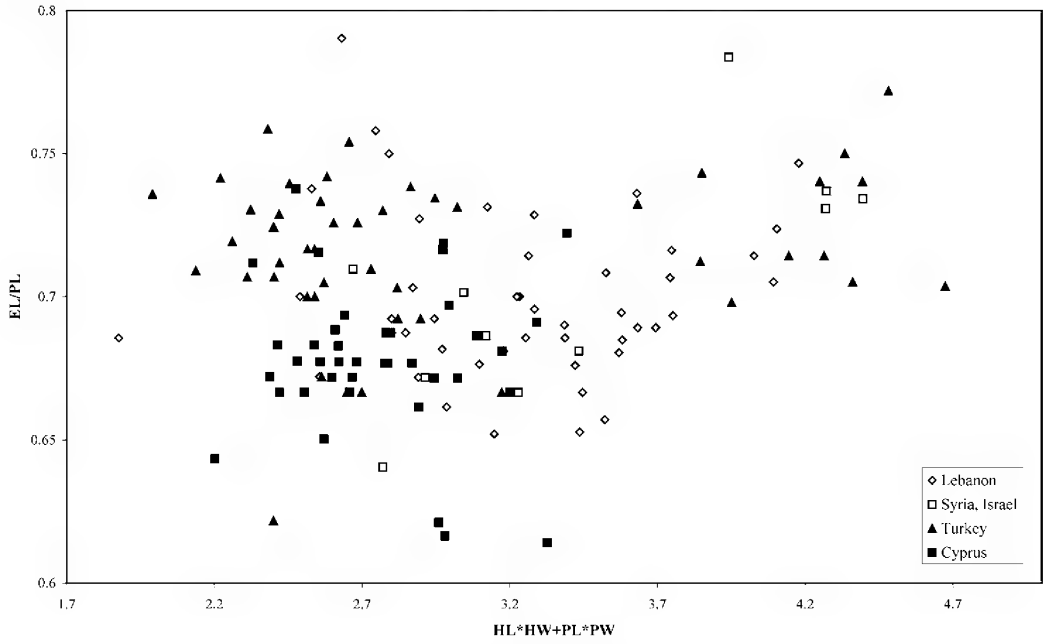


Fig. 139. *Leptobium syriacum* (Saulcy). Relative elytral length in relation to body size (see chapter 2).

The specimens from Lebanon labelled as paratypes of *L. gridellianum* have no type status. In the original description, only type specimens from Adana are mentioned. The aedeagus of the male type specimens is apically more acute and more asymmetrical than is usually the case in material of *L. syriacum* from the Middle East, but these conditions are linked by transitions, so that the types of *L. gridellianum* are here hypothesised to be conspecific with *L. syriacum*.

Based on external and the male secondary sexual characters, the types of *L. anatolicum* are externally indistinguishable from those of *L. gridellianum* and from small specimens of *L. syriacum* from other regions. The dorsal plate of the holotype of *L. anatolicum* is broader than the average condition in *L. syriacum*, but no constant differences were found suggesting that the types of *L. anatolicum* should represent a distinct species. It seems most likely that the observed differences are an expression of intra- rather than of interspecific variation; hence the synonymy indicated above.

A comparative study of numerous specimens from Cyprus, which had previously been identified as *L. fageli* (Assing & Wunderle 2001), revealed no evidence that *L. syriacum* and *L. fageli* should be distinct species. Consequently, *L. fageli* and its previous synonym *L. waldeni* Bordoni (Assing & Wunderle 2001) are here placed in the synonymy of the senior name *L. syriacum*.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 147): HL: 0.99–1.50, 1.23; HW: 0.91–1.46, 1.16; PW: 0.91–1.48, 1.17; PL: 1.08–1.67, 1.36; EL: 0.74–1.26, 0.95; TiL: 0.78–1.38, 1.07; TaL: 0.76–1.24, 0.94; AL: 1.48–2.12, 1.75; TL: 6.1–11.2, 8.5; HL/HW: 1.00–1.13, 1.06; PW/HW: 0.96–1.05, 1.01; PL/PW: 1.10–1.22, 1.17; EL/PL: 0.61–0.79, 0.70; TiL/TaL: 0.98–1.26, 1.14.

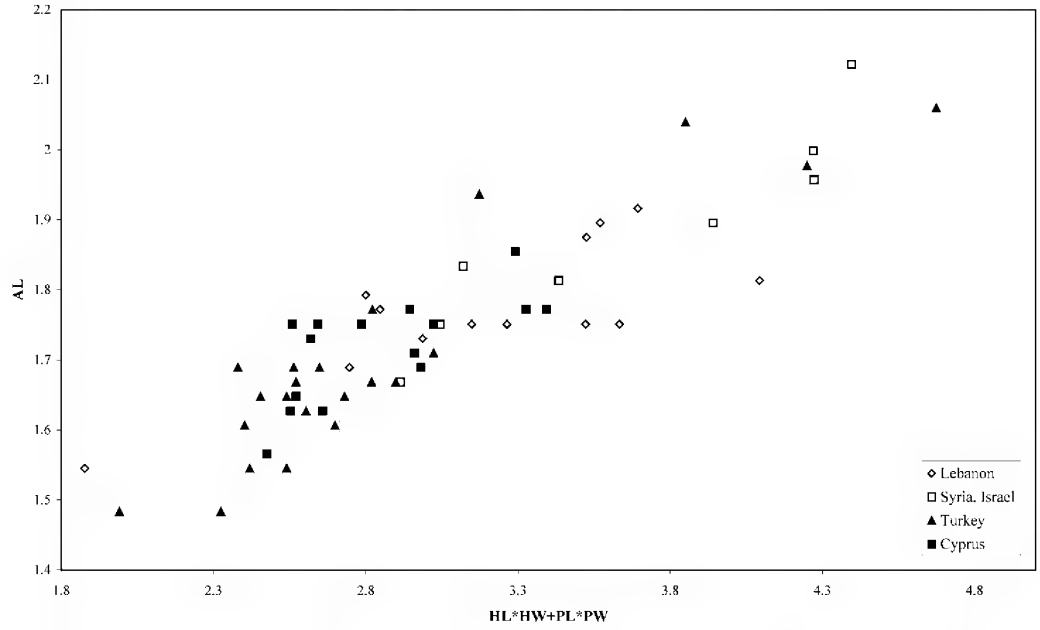


Fig. 140. *Leptobium syriacum* (Saulcy). Aedeagus length in relation to body size (see chapter 2).

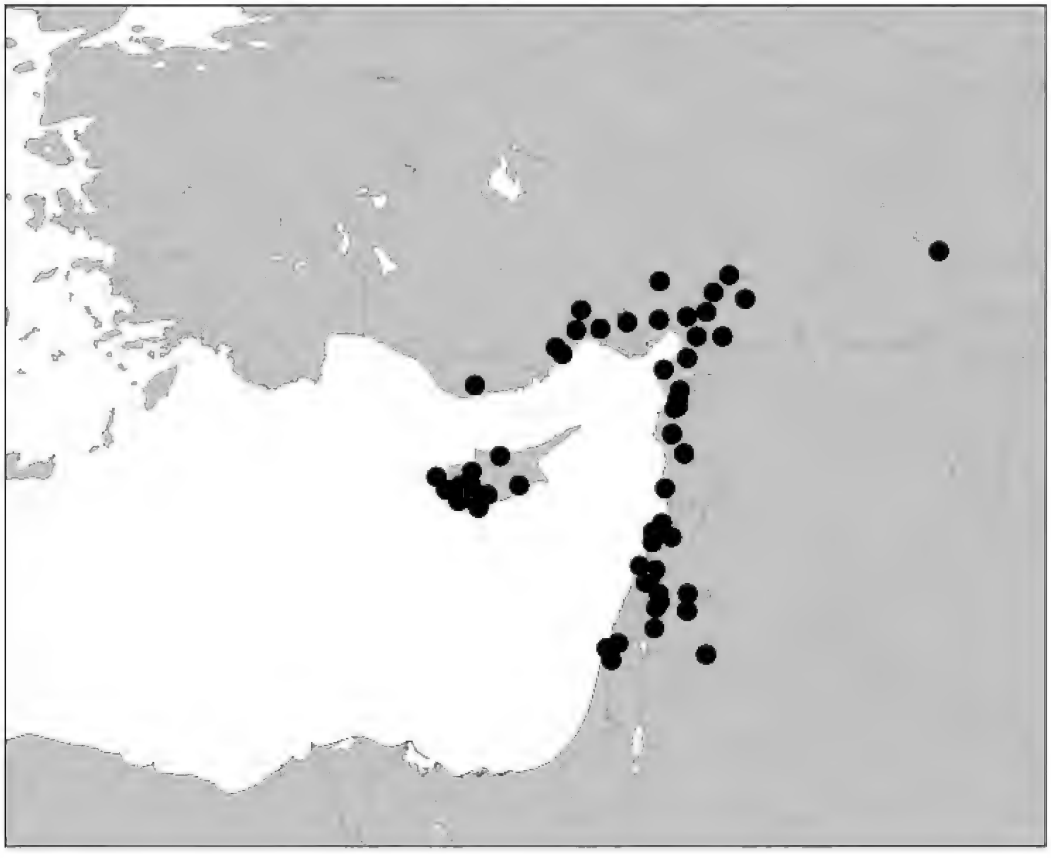


Fig. 141. Distribution of *Leptobium syriacum* (Saulcy) in the Eastern Mediterranean, based on revised records.

Extremely variable species (see measurements and ratios). External morphology as in *L. illyricum*, but often of larger size, with on average less oblong head (see ratio HL/HW), and with on average larger eyes (Figs. 127, 128).

♂: sternite VII weakly modified, with weakly concave posterior margin and weakly depressed in posterior median area; sternite VIII as in Fig. 138; aedeagus of rather variable size and shape, dorsal plate broader than in *L. illyricum*, ventral process more transverse and in lateral view of different shape (Figs. 129–137).

Intraspecific variation

Max/min ratios: HL: 1.52; HW: 1.61; PW: 1.64; PL: 1.54; EL: 1.69; TiL: 1.76; TaL: 1.62; AL: 1.43; HL/HW: 1.13; PW/HW: 1.09; PL/PW: 1.11; EL/PL: 1.29; TiL/TaL: 1.29. In the material examined, intraspecific variation both of external (especially size, head shape, relative eye size) and sexual characters (especially size of aedeagus and shape of dorsal plate) is enormous (see measurements and ratios). Variability of absolute size parameters is almost as high as in *L. illyricum*, while that of relative measurements and proportions (ratios) is moderate. Distinct clinal trends regarding absolute size were not observed, though specimens from Cyprus are smaller on average and the largest beetles were seen from Turkey and the Middle East countries. In Turkey, specimens from Antakya are usually larger than those from the Taurus range (Fig. 139). Geographic trends regarding relative elytral length are not pronounced; it is on average higher in Cyprus than elsewhere, but variability within populations is enormous (Fig. 139). Variability of aedeagus size is mostly allometric (Fig. 140).

Distribution and bionomics

The species, evidently a Syrian element sensu LATTIN (1967), is rather widespread in the Eastern Mediterranean, its distribution ranging from central southern Anatolia (western Mersin) to Israel and including Cyprus (Fig. 141). It has been found in various kinds of forest (pine, oak, laurel, alder), shrubs, macchia, fallows, meadows, compost, as well as on river banks and at the edge of a salt lake at a wide range of altitudes (sea-level up to 1900 m). In one locality in Mersin (Yeniköy), it was apparently collected together with *L. illyricum*.

The examined specimens were taken during the periods from February through July and from October through December, with a pronounced maximum in April. Records from January, August, and September are unknown (Fig. 142). Teneral beetles were collected in June and November.

3.16 *Leptobium densiventre* (Fauvel, 1875) (Figs. 143–175)

Dolicaon densiventris; FAUVEL (1875: xx).
Dolicaon siculus; GRIDELLI (1926: 142ff.), **n. syn.**
Dolicaon boiteli; NORMAND (1938: 354f.), **n. syn.**
Leptobium densiventre; FAGEL (1957: 328f.), **n. syn.**
Leptobium lucidum; FAGEL (1957: 331f.), **n. syn.**
Leptobium kabylianum; FAGEL (1957: 329f.), **n. syn.**
Leptobium sparsiceps; COIFFAIT (1969: 857, 880), **n. syn.**
Leptobium vaulogeri; COIFFAIT (1969: 854, 883f.), **n. syn.**
Leptobium fernanensis [sic]; COIFFAIT (1969: 861, 881), **n. syn.**
Leptobium tuniseum; COIFFAIT (1969: 854, 884), **n. syn.**
Leptobium diabolicum; COIFFAIT (1969: 856, 882f.), **n. syn.**
Leptobium vulcanum; COIFFAIT (1969: 857, 879), **n. syn.**
Leptobium rambouseki; BORDONI (1984: 87f.), **n. syn.**

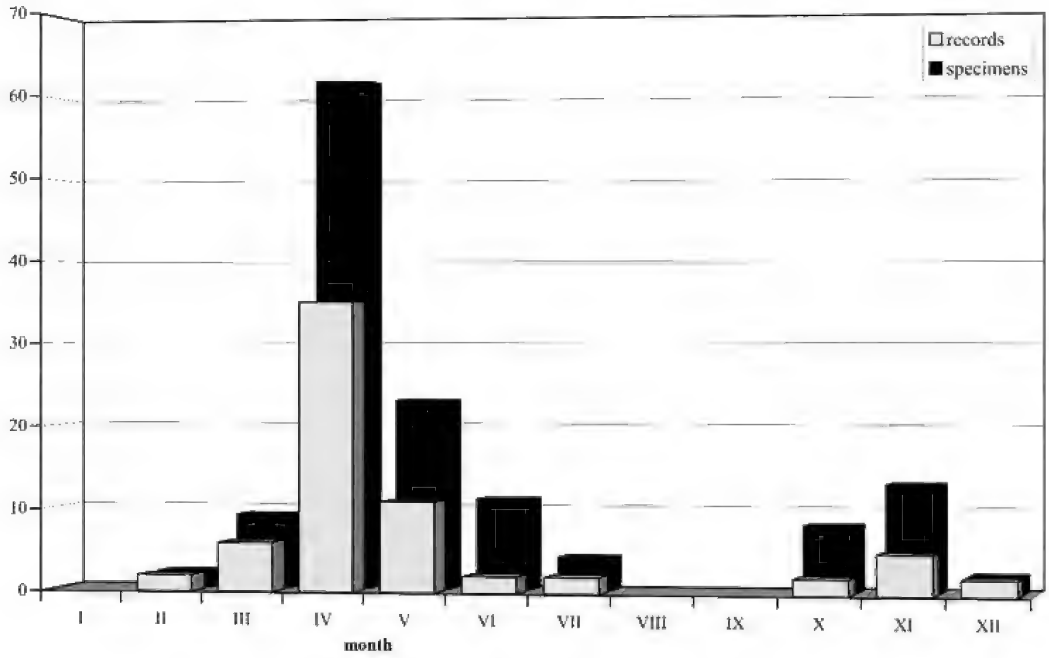


Fig. 142. *Leptobium syriacum* (Saulcy). Seasonal distribution of the examined specimens (black bars) and samples/records (grey bars).

Types examined

D. densiventris Fauvel: Lectotype ♂ [dissected prior to present study; apex of aedeagus slightly damaged], here designated: Bône janvier / Laverdure (Algérie) 4 / Ex-Typis / Coll. et det. A. Fauvel *Dolicaon densiventris* Fauv. R.I.Sc.N.B. 17.479 / G. Fagel det. *densiventris* (Fauvel) Fagel / Paratype / Lectotypus ♂ *Dolicaon densiventris* Fauvel desig. V. Assing 2004 / *Leptobium densiventre* (Fauvel) det. V. Assing 2004 (IRSNB). – Paralectotypes: 1 ♀: var. / Miliana / Ex-Typis / Coll. et det. A. Fauvel *Dolicaon densiventris* Fauv. R.I.Sc.N.B. 17.479 / G. Fagel det. *Leptobium kabylianum* n. sp. / Paratype (IRSNB); 1 ♀: Tanger / Alger mai / Bône / Philippeville / Tunisia Kairoan, 10.4 Abdul Kerim 1873 / Ex-Typis / Coll. et det. A. Fauvel *Dolicaon densiventris* Fauv. R.I.Sc.N.B. 17.479 / G. Fagel det. *densiventris* (Fauvel) Fagel / Type (IRSNB).

D. siculus: Lectotype ♂, here designated: Ficuzza, Sicilia, V.1912, A. Dodero / Typus / *Dolicaon siculus* Type det. E. Gridelli / *siculus* Grid. / Museo Civico di Genova / *Leptobium siculum* (Grid.) V. I. Gusarov det. 1993 / Lectotypus ♂ *Dolicaon siculus* Gridelli desig. V. Assing 2003 / *Leptobium siculum* (Gridelli) det. V. Assing 2003 (MCSNG). – Paralectotypes: 1 ♀ (attached to the same pin as lectotype), 21 exs.: Ficuzza, Sicilia, 19/27.V.1906, A. Dodero (MCSNG); 3 exs.: Sicilia, Ficuzza, 15.–18.V.911, L. T. (MCSNG); 3 exs.: Sicilia [without further specification] (MCSNG); 2 ♀♀: Edough [36°53N, 07°37E], D. Puton, 1874 / *Dolicaon densiventris* Fauvel / Paratypus [sic] *Dolicaon siculus* Gridelli, 1926 / *Leptobium algiricum* Jarrige, V. I. Gusarov det. 1993 (MCSNG).

L. densiventre Fagel: Paratypes (for further types see type material of *L. densiventre* (Fauvel) above): 1 ♂, 1 ♀: Algérie, Quarsenis, Teniet el Haad, 30-v/5-vi-1954, G. Fagel / G. Fagel det. *densiventris* (Fauvel) Fagel [sic] / Paratype / R. I. Sc. N. B. I. G. 24885 / *Leptobium densiventre* (Fauvel) det. V. Assing 2004 (IRSNB); 1 ♀: Algérie, Constantine, 26.–27.V.1953, G. Fagel; 1 ♂: Tunisi IV, G. Doria 1881; 1 ♂: Alger, Bouzaréa, 350 m, 28.IV.1953, G. Fagel; 1 ♂: Oran; 1 ♀: Bone; 1 ♀: Constantine; 2 ♂♂: Philip. (all IRSNB).

L. lucidum: Holotype ♂: Gde Kabylie, Azazga, Oued Sebaou, 130 m, 12.V.1953, G. Fagel / G. Fagel det. *lucidum* n. sp. / Type / R. I. Sc. N. B. I. G. 24885 / *Leptobium densiventre* (Fauvel) det. V. Assing 2004 (IRSNB). – Paratypes: 1 ♂, 1 ♀ [♀ teneral]: same data as holotype (IRSNB); 1 ♂: Tlemcen / Sénegal / Coll. et det. A. Fauvel *Dolicaon illyricus* Er.

R.I.Sc.N.B. 17.479 (IRSNB); 1 ♂: Edough 5 / Coll. et det. A. FAUVEL *Dolicaon illyricus* Er. R.I.Sc.N.B. 17.479 (IRSNB).

L. kabylianum: Holotype ♂: Gde Kabylie, Tifrit N'Ait el Hadi, 700 m, 21.V.1963, G. FAGEL / G. FAGEL det. *kabylianum* n. sp. / Type / R. I. Sc. N. B. I. G. 24885 / *Leptobium kabylianum* Fagel det. V. ASSING 2004 (IRSNB). – Paratypes: 1 ♂, 3 ♀♀: same data as holotype (IRSNB); 1 ♂: *densiventris* Fauv. Constantine (IRSNB); 1 ♂: Bou Berak, Kabilie L. PUEL (IRSNB); 1 ♂: Ben Aknoûn [36°46N, 3°01E] près Alger (IRSNB).

L. sparsiceps: Holotype ♂: Tlemcen, Alg. D. MARTIN / Muséum Paris Coll. JARRIGE / Type / *Leptobium sparsiceps* m. in litt. J. JARRIGE det. / *Leptobium sparsiceps* Coiff., H. COIFFAIT det. 19?? [year illegible] / Muséum Paris / *Leptobium densiventre* (Fauvel) det. V. ASSING 2004 (MNHNP). – Paratypes: 2 ♂♂: Tlemcen, D. MARTIN (MNHNP).

L. vaulogeri: Holotype ♂: Medeah Alg. (DE V.) / *Leptobium vaulogeri* m. in litt., J. JARRIGE det./ Muséum Paris Coll. JARRIGE / Type / *Leptobium vaulogeri* Coiff., H. COIFFAIT det. 19?? [year illegible] / Muséum Paris / *Leptobium densiventre* (Fauvel) det. V. ASSING 2004 (MNHNP). – Paratype ♀: Medeah Alg. (DE V.) / Paratype / Muséum Paris (MNHNP).

L. fernanense: Holotype ♂: Dj. Fernane, Bou Saada, 20 mai 1921 / Holotype / *Leptobium fernanensis* Coiff., H. COIFFAIT det. 1969 / *Leptobium densiventre* (Fauvel) det. V. ASSING 2004 (MNHNP).

L. tuniseum: Holotype ♂ [aedeagus missing]: Teboursouk / Holotype / *Leptobium tuniseum* Coiff., H. COIFFAIT det. 1969 / *Leptobium densiventre* (Fauvel) det. V. ASSING 2004 (MNHNP). – Paratype ♂: same data as holotype (MNHNP).

L. diabolicum: Holotype ♂: Algérie 1890, Chanzy, DE VAULOGER / Holotype / *Leptobium diabolicum* Coiff., H. COIFFAIT det. 1969 / *Leptobium densiventre* (Fauvel) det. V. ASSING 2004 (MNHNP).

L. vulcanum: Holotype ♂: Sicile, Acicastello / Holotype / Museum Paris coll. H. COIFFAIT / *Leptobium vulcanus* [sic] Coiff. det. H. COIFFAIT 1969 / *Leptobium siculum* (Gridelli) det. V. ASSING 2003 (MNHNP).

L. rambouseki: Holotype ♂: Tunis. Aïn Draham, 10.3.25, Dr. RAMBOUSEK / Holotypus / *Leptobium rambouseki* det. BORDONI 1983 / *Leptobium densiventre* (Fauvel) det. V. ASSING 2004 (cBor). – Paratypes: 3 ♂♂, 4 ♀♀: same data as holotype (cBor).

Additional material examined (total, including types: 594 exs.)

Algeria – 8 exs., Bône (DEI, IRSNB, ZIN, cAss); 13 exs., Teniet el Haad, 1889, leg. DESBROCHERS (IRSNB, MHNG, NHMW, cAss); 3 exs., Teniet el Haad (HNHM, MNHUB); 10 exs., Oran (DEI, IRSNB, NHMW, cAss); 12 exs., Mechroha ["Laverdure", 36°22N, 7°50E], 8. and 9.X.1929, leg. SCHATZMAYR (MCSNM, MCSNT, NHMB, cAss); 1 ex., Kabylie, Djurdjura, Tizi-n-Kouilal [36°28N, 4°14E], 1600 m, 24.IV.1978, leg. MOURGNA (cAss); 1 ex., Djurdjura, Tikjda, 10.IV.1988, leg. SAMA (cSch); 6 exs., Kabylie, Bou Berak near Dellys (DEI, IRSNB, MCSNM, cAss); 10 exs. [with slender dorsal plate], Bou Berak, leg. PUEL (NHMB, cAss); 1 ex., Médéa, V.1951, leg. FREY (NHMB); 1 ex., Médéa, 1861, leg. GRAY (IRSNB); 1 ex., Djebel Taya [36°30N, 7°05E] (IRSNB); 1 ex., Bir el Arche ["Navarin", 36°08N, 5°50E] (IRSNB); 14 exs., Médéa, leg. DE VAULOGER (MHNG); 7 exs., St. Charles, leg. THERY, etc. (HNHM, IRSNB, NHMW, SMTD, cAss); 1 ex., Alger, Le Hamma, 100 m, 22.IV.1953, leg. FAGEL (IRSNB); 17 exs., Algier (DEI, HNHM, IRSNB, MNHUB, NHMW, ZIN, cAss); 1 ex., Algier, II.1910 (MNHUB); 1 ex., Skikda ["Philippeville"], V.1898, leg. VAREILLES (NHMB); 1 ex., same locality (IRSNB); 7 exs., Blida (MHNG, cAss); 1 ex., El Kantara, 28.III.1952 (cAss); 1 ex., Akfadou, 1000–1400 m, 16.IV.1988, leg. SAMA (cSch); 1 ex., Grande Kabylie, Yakouren, Forêt Bheni-Gobri, 800 m, V.1953, leg. FAGEL (NHMW); 3 exs., Kabylie, Setif, Kherrata, 750 m, 7.III.1991, leg. HEINZ (cKor, cAss); 1 ex., Setif, Djebel Babor [36°30N, 5°28E], 2100 m, 5.XI.1984 (cBor); 1 ex., Massif de l'Aurès, Col de Telmet [35°36N, 6°03E], 1760 m, 6.XI.1984 (cBor); 1 ex., SE Médéa, Ouzera, 1000–1200 m, 11.III.1991, leg. HEINZ (cKor); 1 ex., Médéa (MNHNP); 5 exs., Hammam Righa (NHMW, cAss); 4 exs., Massif de l'Ouarsenis [35°56N, 1°46E], V.1897, leg. DE VAULOGER (cTro); 2 exs., Seraidi ["Bugeaud", 36°55N, 7°40E], 1897, leg. DE VAULOGER (cTro); 2 exs., "Jemmafres" (NHMW); 2 exs., Boghar (NHMW, cAss); 1 ex., Guelma (cAss); 2 exs., Constantine (IRSNB, NHMW); 2 exs., Ouled Beni Messoud, IX.1944 and IV.1945, leg. MARCUZZI (MCSNT, cAss); 1 ex., Ben Aknoûn, 3.XII.1959, leg. MAHOUX (cTro); 1 ex. [teneral], Djurdjura, Azrou Tidjer [36°30N, 4°21E], 1800 m, 2.XI.1984 (cAss); 1 ex., Djurdjura, Ras Timedouine, 1700 m, 24.V.1981 (cZan); 2 exs., "Oued Shouk", 29.IV.1927, leg. MARAN (cBor); 1 ex., Bejaïa ["Bougie",

36°45N, 5°05E], V.1901, leg. CHOBAUT (IRSNB); 4 exs., Sidi Ali Ben Youb ["Chanzy", 34°57N, 00°43W], leg. DE VAULOGER (IRSNB, cAss); 18 exs., Tlemcen, leg. MARTIN (MNHNP); 7 exs., Daya (MNHNP); 1 ex., "*dentiventris* [sic] Fauv. Bona, Alger, DESBROCH. typ. / Syntypus [the specimen is no type!] / D.E.I. coll. VON HEYDEN / *Dolicaon densiventris* Fauv." (DEI); 5 exs., "C. Cavallo", IV.1936, leg. GROSSLAUDE (cTro); 41 exs., locality not specified (DEI, HNHM, IRSNB, MNHUB, NHMB, NHMW, ZIN, cAss).

Tunisia – 14 exs., Le Kef, leg. NORMAND, etc. (DEI, HNHM, IRSNB, MHNG, NHMB, NHMW, SMNS, cAss); 2 exs., Le Kef, XI.1948, leg. DEMOFLYS (cTro); 1 ex., 8 km NE El Kef, Ferme Shitta, Djebel Eddyr, 1.IV.1977, leg. MAHUNKA (HNHM); 14 exs., Tunis (DEI, MHNG, NHMW, cAss); 2 exs., Tunis, V.1941, leg. GROSSLAUDE (cTro); 4 exs., Rādis ["Radès"], leg. GROSSLAUDE (cTro, cAss); 2 exs., Karthago, leg. PIRAZZOLI, etc. (DEI, HNHM); 1 ex., Karthago (IRSNB); 1 ex., Karthago, 17.I.1929, leg. SCHATZMAYR (MCSNM); 2 exs., Zaghuan, 25.II.1929, leg. SCHATZMAYR (NHMB, cAss); 1 ex., "Hougia", V.1935 (IRSNB); 1 ex., ca. 40 km SW El Fahs, 36°05N, 9°41E, 410 m, stream bank with poplar, oleander, etc., litter sifted, 25.XII.2004, leg. ASSING (cAss); 3 exs., ca. 30 km E Siliana, Bou Saadia, 36°02N, 9°38E, 550 m, N-slope with macchia, litter and grass sifted, 25.XII.2004, leg. ASSING, WUNDERLE (cAss, cWun); 4 exs., ca. 30 km SE Siliana, pass, 35°56N, 9°29E, 620 m, loamy pasture, under stones, 25.XII.2004, leg. ASSING, WUNDERLE (cAss, cWun); 2 exs., ca. 25 km SE Zaghouan, 36°17N, 10°16E, 170 m, roadside, under stones, 30.XII.2004, leg. WUNDERLE (cWun); 5 exs., Mateur, leg. ROCHE (IRSNB); 1 ex., Mateur, 5.IV.1962, leg. BESUCHET (MHNG); 1 ex., Tawzar ["Tozeur", 33°55N, 8°08E], IV.1954, leg. DEMOFLYS (MHNG); 5 exs., Souk-el-Arba [36°30N, 8°47E] (NHMW, cAss); 6 exs., ca. 20 km WNW Teboursouk, pass, 36°30N, 9°10E, 700 m, N-slope, pasture with rocks and edge of field, under stones and sifted, 26.XII.2004, leg. ASSING, WUNDERLE (cAss, cWun); 10 exs., ca. 15 km N Teboursouk, 36°31N, 9°13E, 390 m, ruderal pasture and edge of field, under stones, 26.XII.2004, leg. ASSING, WUNDERLE (cAss, cWun); 1 ex., Teboursouk [36°28N, 9°15E], 18.III.1984, leg. MEYBOHM (cAss); 9 exs., Teboursouk (HNHM, IRSNB, NHMB, cAss); 1 ex., 20 km ENE Kesra, 6 km E Makthar, 1000 m, 8.X.1995, leg. SCHULZ & VOCK (cAss); 1 ex., El Ksour, 19.III.1984, leg. MEYBOHM (cAss); 2 exs., Aïn Draham, 27.–28.III.2003, leg. LACKNER (cAss); 2 exs., Aïn Draham (DEI, MHNG); 1 ex., Aïn Draham, VI.1946, leg. DEMOFLYS (cTro); 5 exs., Aïn Draham, 19.XI.1997 (cAdo); 1 ex., Aïn Draham, II.1945, leg. DEMOFLYS (cTro); 3 exs., Aïn Draham, IV.1945, leg. DEMOFLYS (cTro, cAss); 3 exs., Aïn Draham, XI.1945, leg. DEMOFLYS (cTro); 5 exs., Aïn Draham, Aurousseau (cTro, cAss); 1 ex., 2 km E Aïn Draham, Jebel Bir, 36°46N, 8°43E, 770 m, *Quercus suber* and *Quercus* sp., 20.X.2003, leg. BEHNE (DEI); 1 ex., 10 km E Aïn Draham, 36°46N, 8°48E, 560 m, *Quercus suber*, *Pistacia*, olive, 20.X.2003, leg. BEHNE (DEI); 2 exs., 30 km NE Aïn Draham, Jebel Bir, 36°58N, 8°56E, 130 m, *Quercus suber*, *Pistacia*, 20.X.2003, leg. BEHNE (DEI, cAss); 1 ex., 4 km S Aïn Draham, 36°45N, 8°41E, 650 m, *Quercus suber* and *Quercus* sp., 21.X.2003, leg. BEHNE (DEI); 1 ex., ca. 2 km S Aïn Draham, 36°44N, 08°41E, 670 m, litter of oak forest, 28.XII.2004, leg. WUNDERLE (cWun); 1 ex., Al Firnānah ["Fernana", 36°39N, 8°42E] near Aïn Draham, 8.III.1961, leg. HEINZ (DEI); 2 exs., Al Firnānah (IRSNB, cAss); 1 ex., Al Firnānah, X.1946, leg. DEMOFLYS (cTro); 1 ex., Al Firnānah, 6.IV.1962, leg. BESUCHET (cBor); 1 ex., Les Chênes near Aïn Draham, 600 m, 2.III.1991, leg. HEINZ (cKor); 1 ex. [teneral], Bin Metir, VI.1945, leg. DEMOFLYS (cTro); 5 exs., Tastūr ["Testour"], V.1936, leg. DEMOFLYS (cTro, cAss); 5 exs., St. Germain, II.1937, leg. GROSSLAUDE (cTro); 1 ex., Utique, 3.IV.2002 (cAdo); 8 exs., 15 km NW Ghardimaou, Aïn Soltane, 24.–26.III.2003, leg. LACKNER (cAss); 1 ex., Aïn Soltane, near Ghardimaou, 30.IV.2004, leg. LACKNER (cAss); 2 exs., Belvedere S. A., 31.XII.1928, leg. SCHATZMAYR (MCSNM); 2 exs., Chott Sedjoumi, 28.IX.1929, leg. SCHATZMAYR (MCSNM); 1 ex., same data, but 23.II.1929 (SMTD); 2 exs., Jabal al Jallud ["Dj. Djeloud", 36°46N, 10°13E], 15.X.1929, leg. SCHATZMAYR (MCSNM); 1 ex., Bardaw ["Le Bardo", 36°44N, 9°11E], 18.I.1929, leg. SCHATZMAYR (MCSNM); 1 ex., Belif [37°02N, 9°06E], near Cap Negro, 5.IV.1962, leg. BESUCHET (MHNG); 4 exs., Tamera [37°03N, 9°07E], 10.II.1935, leg. GROSSLAUDE (MHNG, cTro); 2 exs., Babouch, Kroumirie, 400 m, 6.X.1995, leg. SCHULZ & VOCK (cAss); 5 exs., Fondouk Jedid [= Fondouk Djedid, 36°40N, 10°27E] (NHMW, cAss); 1 ex., 20 km SW Sfax, 26.III.1991, leg. WEWALKA (NHMW); 1 ex., Tabarka, Cap Negro, 10.III.1961, leg. HEINZ (cAss); 1 ex., 10 km SW Hammamet, Besbassia, 28.XI.–6.XII.1995, leg. WRASE (cSch); 3 exs., Djebel Zhagouan, 36°22N, 10°08E, 1.IV.1992, leg. PÜTZ (cPüt, cAss); 14 exs., locality not specified (IRSNB, MHNG, NHMW).

Libya – 2 exs., Tripolis, Kedua, leg. QUEDENFELDT (MNHUB, cAss).

Italy – Sicilia: 20 exs., Ficuzza, leg. HOLDHAUS, LEONHARD, etc. (DEI, MNHUB, NHMW, cAss); 4 exs., Ficuzza, 17.IV.1942 (NHMW); 5 exs., Ficuzza, 15.II.1926, leg. SCHATZMAYR (MCSNM, MCSNT, NHMB); 1 ex., road from Corleone to Marineo, 19.II.1994 (cAdo); 1 ex., Corleone, Santuario di Tagliavia, 12.II.1995 (cAdo); 1 ex., Piana degli Albanesi (PA), 650 m, 25.II.1991, leg. HEINZ (cKor); 1 ex., Piana degli Albanesi, IV.1988 (cBor); 4 exs., Piana degli Albanesi, 9.II.1977 (cAdo); 1 ex., Piana degli Albanesi, 19.III.1996, leg. SPARACIO (cAdo); 1 ex., Mte. Maganoce [37°57N, 13°18E], 900 m, III.1970 (cBor); 1 ex., same locality, 27.II.1972 (cBor); 1 ex., S. Agata (PA) [37°57N, 13°20E], 27.II.1972 (cBor); 1 ex., locality illegible, IV.1973, leg. BORDONI (cBor); 1 ex., Calatafimi, Lago Rubino [37°53N, 12°43E], II.1980 (cBor); 2 exs., Randazzo, 16.XII.1976, leg. SAMA (cZan); 2 exs., M. Erei, Enna, Villadoro, 2.III.1991, leg. SABELLA (cZan); 1 ex., Ristretta (Messina), Sella del Contrasto, VII.1975, leg. BUCCIARELLI (cZan); 1 ex., Messina, Monte Crasto [38°00N, 14°44E] (MCSNT); 1 ex., Nebrodi, IV.1988 (cAdo); 1 ex., Nebrodi, Valle Caronia, P. Scorciavacca, 15.VII.1991, leg. ZANETTI (cAss); 1 ex., Lentini, IV.1935, leg. FREY (NHMB); 1 ex., Monti Iblei, Melilli, Cava Gissara, 300 m, 6.VII.1992, leg. SABELLA (cAdo); 1 ex., Monti Iblei, Avola (SR), Cava Grande, 8.VII.1989, leg. ADORNO (cAdo); 7 exs., Catania, Agira, Monte Scalpello, 400 m, 4.XI.1993 (cAdo); 1 ex., same locality, 1.III.1991 (cAdo); 17 exs., N Sciacca, Misilifurme [37°35N, 13°07E], 1.XII.1993 (cAdo); 1 ex., Castellammare del Golfo, C. da Catuffo, 2.III.1993 (cAdo); 3 exs., Custonaci (TP), C. da Giacolamaro, 700 m, 2.III.1994 (cAdo, cAss); 1 ex., Castellammare del Golfo (TP), C. da Catuffo, Pendici M. Sparagio, 200 m, 2.III.1993 (cAss); 1 ex., Antillo (ME), Giardino di Redenzione, 3.VI.1995, leg. ADORNO (cAdo); 1 ex., Antillo (ME), Romito, 3.VI.1995, leg. ADORNO (cAdo); 5 exs., locality not specified (HNHM, IRSNB, MNHUB, NHMW); 1 ex., locality illegible (DEI); 4 exs. [2 exs. with light-coloured pronotum], "Italia" (MNHUB).

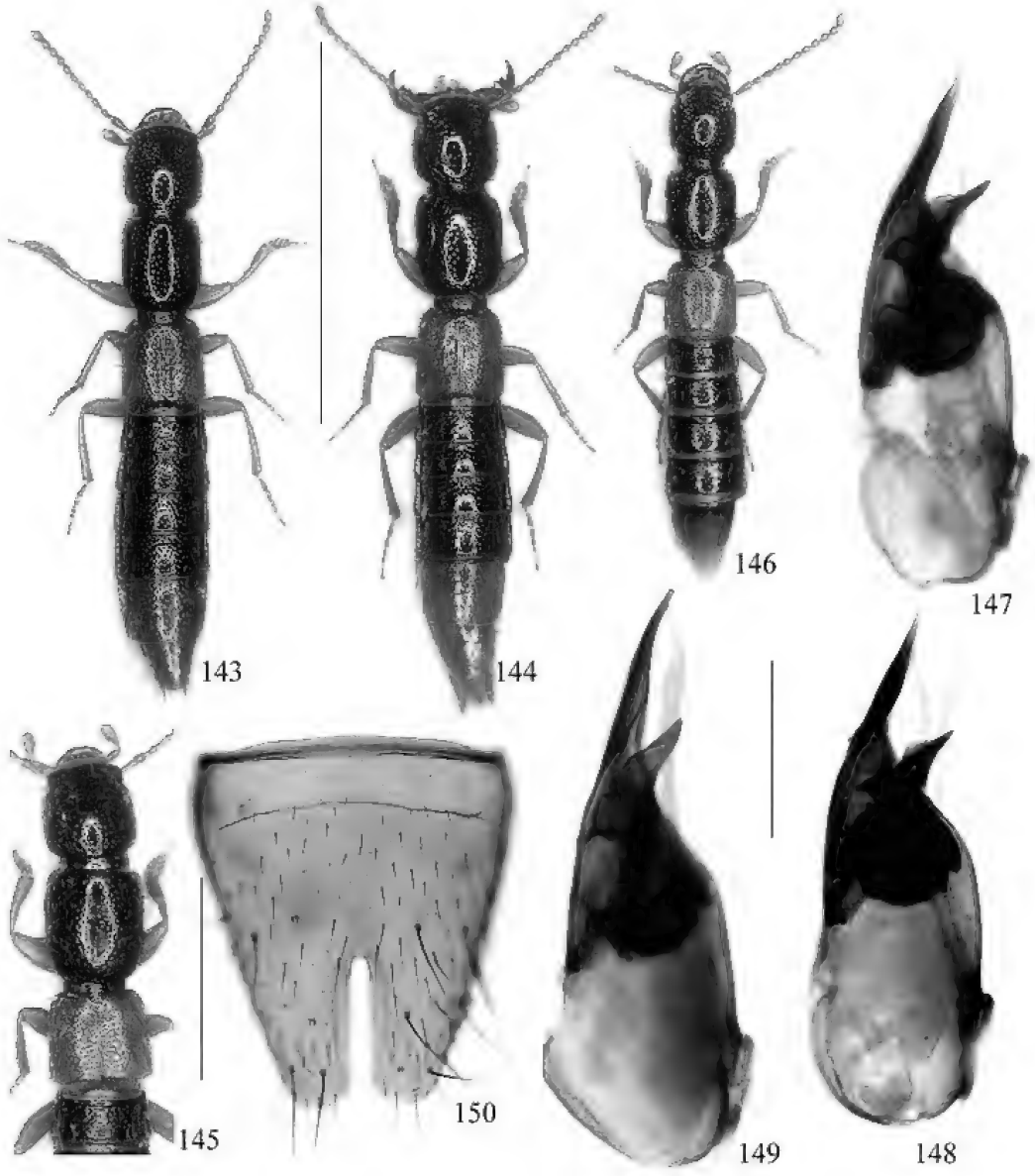
Locality illegible, doubtful, or not identified – 1 ex., "Chebli" (?) (MHNG); 1 ex., "Egypte, DESCHAMPS / Mohamedia" (cAss); 1 ex., "Egypte, DESCHAMPS / Sidi Ben Hannen [?]" (MHNG); 3 exs. (NHMW, SMTD); 1 ex., Tourieze?, 20.XI.1997 (cAdo); 1 ex., Vallecola?, 19.XI.1997 (cAdo).

Comments

The original description of *L. densiventre* is based on an unspecified number of syntypes from "Tunisie, Kairoan, Utica, en mars et avril (KERIM); Bône (LEPRIEUR); Constantine (HÉNON), Milianah (LETHIERRY); Tanger (OLCESE)". Since the type series doubtlessly consists of two species (*L. densiventre* and *L. artum*), a lectotype designation is mandatory. As frequently observed before (ASSING 1999b), FAUVEL was in the habit of having more than one specimen from different localities on the same pin and later exchanging the specimens without removing the labels. This explains the presence of different locality labels on the same pin (see type material of *L. densiventre*).

The original description of *D. siculus* is based on an unspecified number of syntypes from various localities in Sicily and Algeria, and deposited in various collections. At first, the type material from Sicily was believed to represent a distinct species, which is why they were labelled as *Leptobium siculum*, but in the course of studying more material both from Sicily and North Africa it became evident that, regarding both external and sexual characters, the Sicilian populations are either within the range of variation of North African populations of *L. densiventre* or linked to the conditions found in North African material by transitional conditions.

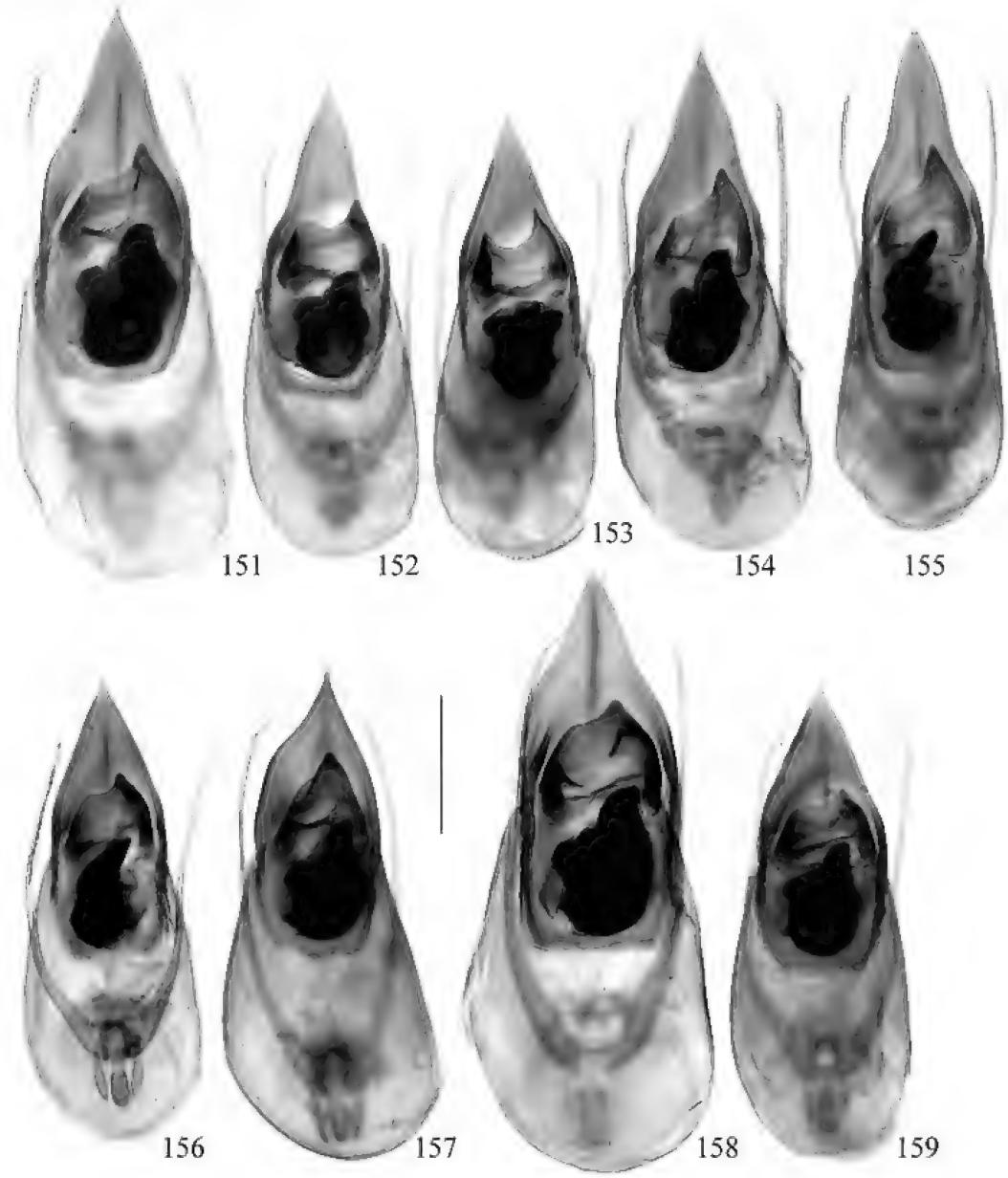
The types of species described by H. NORMAND are deposited in the Laboratoire d'Entomologie et d'Écologie, Institut National Agronomique, Tunis. They are practically inaccessible since they are apparently not sent by mail. Consequently, it was necessary to interpret the identity of *L. boiteli* based on the original description and other sources available in the literature. The type locality of the species is Bizerte in northern Tunisia. The only species I have seen from this region is *L. densiventre*. The



Figs. 143–150. *Leptobium densiventre* (Fauvel) from Tunisia (143), Algeria (144–145, 149–150), and Sicily (146–148). – **143–144**, **146**. Habitus. – **145**. Forebody. – **147–149**. Aedeagus in lateral view. – **150**. Male sternite VIII. – Scale bars: 5 mm (143–146), 0.5 mm (147–150).

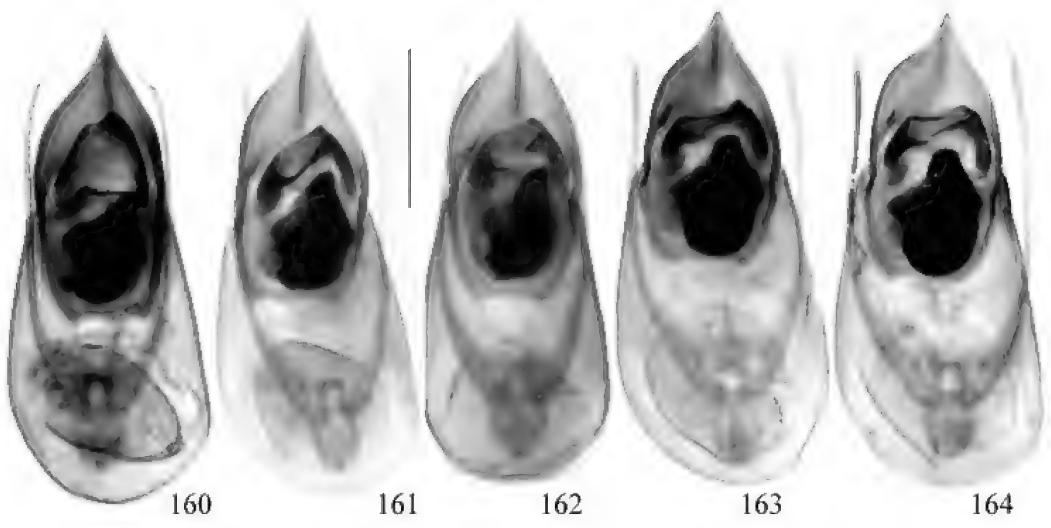
characters specified by NORMAND (1938) to distinguish *L. boiteli* from *L. densiventre* are all highly variable: smaller body size, a shorter third antennomere, smaller eyes, a narrower base of the pronotum, and a shorter aedeagus. Since neither the original description nor the illustration of the aedeagus given by COIFFAIT (1982) provide any evidence whatsoever that the types of *L. boiteli* represent a distinct species, the name is here placed in the synonymy of *L. densiventre*.

After examining FAUVEL's type material of *L. densiventre*, FAGEL (1957) concluded that the type series of that species was composed of three distinct species (*L. densiventre* plus two undescribed species). In presenting a description and designating a



Figs. 151–159. *Leptobium densiventre* (Fauvel), aedeagus. – **151**, **154–155**, **158**. Algeria. – **152–153**, **156**, **159**. Sicily. – **157**. Tunisia. – Scale bar: 0.5 mm.

holotype and several paratypes, he described his interpretation of the species again as "*Leptobium densiventre* (Fauvel) Fagel", which constitutes a junior synonymic homonym of *Dolicaon densiventris* Fauvel. In the same contribution, FAGEL (1957) described two new *Leptobium* species, *L. lucidum* and *L. kabylianum*, stating that both were similar to *L. densiventre*, but that the former was distinguished by larger size and a broader aedeagus with a more acute apex and the latter by a more slender body and a more slender aedeagus. In the course of revising numerous specimens of *L. densiventre* from various localities, however, I have seen all transitional aedeagal shapes linking the condition observed in the types of *L. lucidum* and *L. kabylianum*



Figs. 160–164. *Leptobium densiventre* (Fauvel), aedeagus. – **160.** Algeria. – **161–164.** Tunisia. – Scale bar: 0.5 mm.

with that usually encountered in *L. densiventre*; the same is also true of other characters such as the shape and chaetotaxy of the male sternite VII. Consequently, the types of *L. lucidum* and *L. kabylianum* are here regarded as conspecific with those of *L. densiventre*, which renders both names junior synonyms.

The types of *L. sparsiceps* Coiffait, as well as additional material seen from Tlemcen and Daya (western Algeria) have a more sparsely punctate forebody than average specimens of *L. densiventre*, but puncturation is subject to considerable intraspecific variation not only in *L. densiventre*, but also in other species of the genus. Since no differences were found in the male sexual characters suggesting that these populations should be specifically distinct from *L. densiventre*, *L. sparsiceps* is here regarded as a junior synonym.

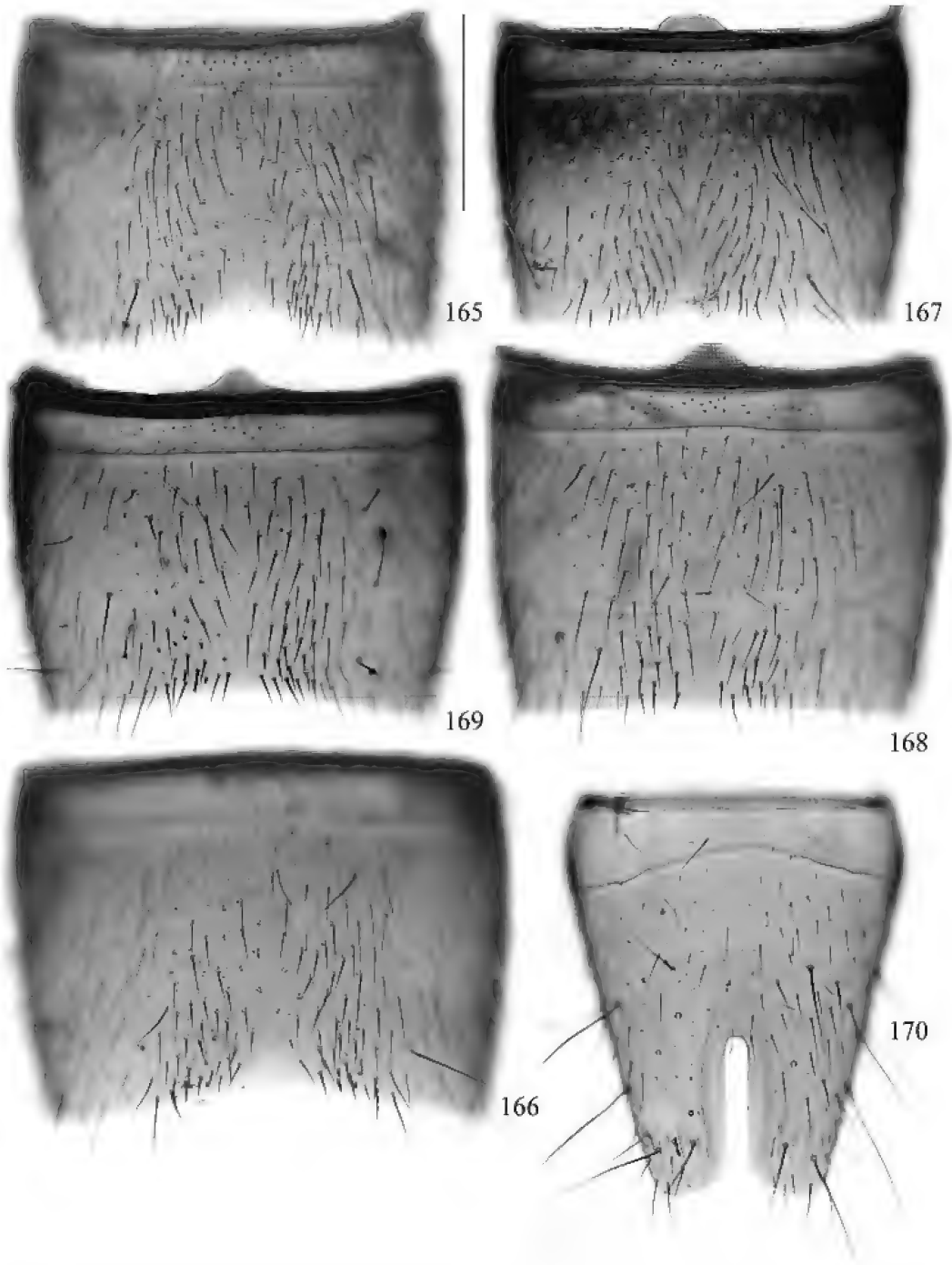
Similarly, *L. vaulogeri*, *L. fernanense*, *L. tuniseum*, *L. diabolicum*, *L. vulcanum*, and *L. rambouseki* are synonymised, as the types of these species were found to be within the range of intraspecific variation of the highly variable *L. densiventre*.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 160): HL: 0.99–1.40, 1.06; HW: 0.80–1.30, 0.99; PW: 0.80–1.34, 1.01; PL: 0.95–1.59, 1.18; EL: 0.64–1.03, 0.80; TiL: 0.74–1.19, 0.89; TaL: 0.62–1.03, 0.79; AL: 1.08–2.02, 1.57; TL: 5.9–9.3, 7.3; HL/HW: 1.00–1.17, 1.07; PW/HW: 0.90–1.08, 1.02; PL/PW: 1.10–1.22, 1.17; EL/PL: 0.62–0.75, 0.67; TiL/TaL: 1.03–1.30, 1.14.

Of moderately large size (see measurements) and extremely variable; habitus as in Figs. 143–146. Coloration as in *L. illyricum*: Head, pronotum, and abdominal segments III–VI black; elytra and abdominal apex rufous; sometimes anterior margin of abdominal segment VII indistinctly infuscate.

Head weakly oblong (see ratio HL/HW); eyes of rather variable size, usually distinctly more than half the length of postocular region in dorsal view, sometimes smaller and only half as long as postocular region; puncturation variable, usually rather coarse, rather dense, and irregularly spaced, sometimes sparser, especially in



Figs. 165–170. *Leptobium densiventre* (Fauvel) from Algeria (165–166), Sicily (167), and Tunisia (168–170). – **165–169.** Male sternite VII. – **170.** Male sternite VIII. – Scale bar: 0.5 mm.

median dorsal region; microsculpture absent. Antennae with antennomere III longer (but usually less than 1.5 ×) than antennomere II.

Pronotum moderately oblong and usually slightly wider than head (see ratios PW/HW and PL/PW); lateral margins weakly tapering posteriad in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.

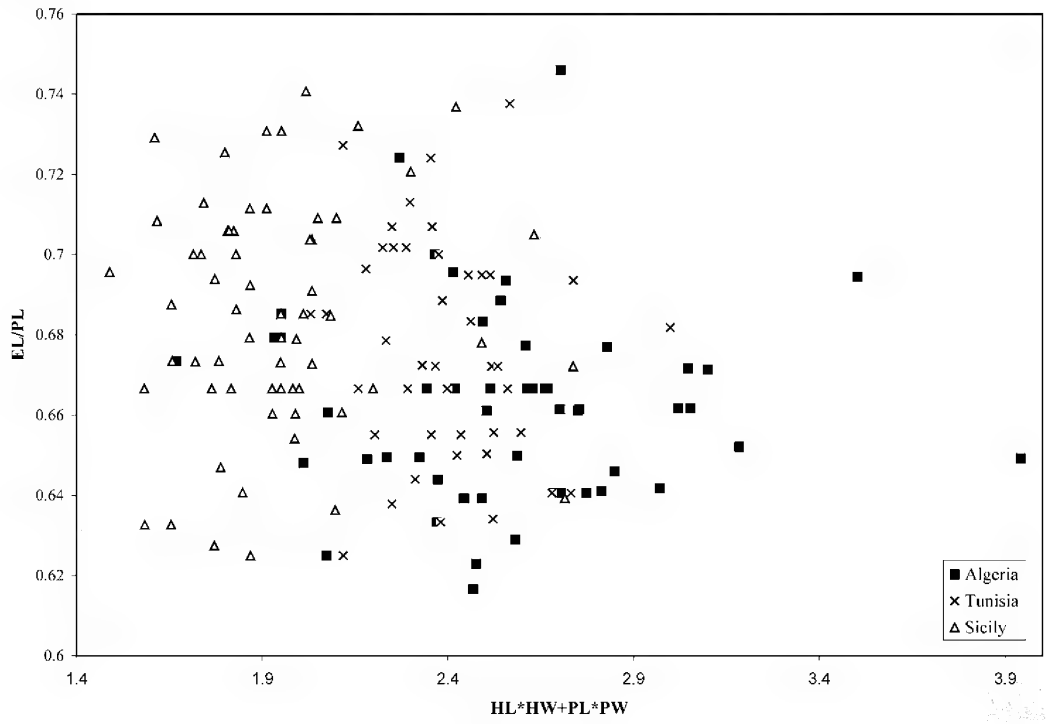


Fig. 171. *Leptobium densiventre* (Fauvel). Relative elytral length in relation to body size (see chapter 2).

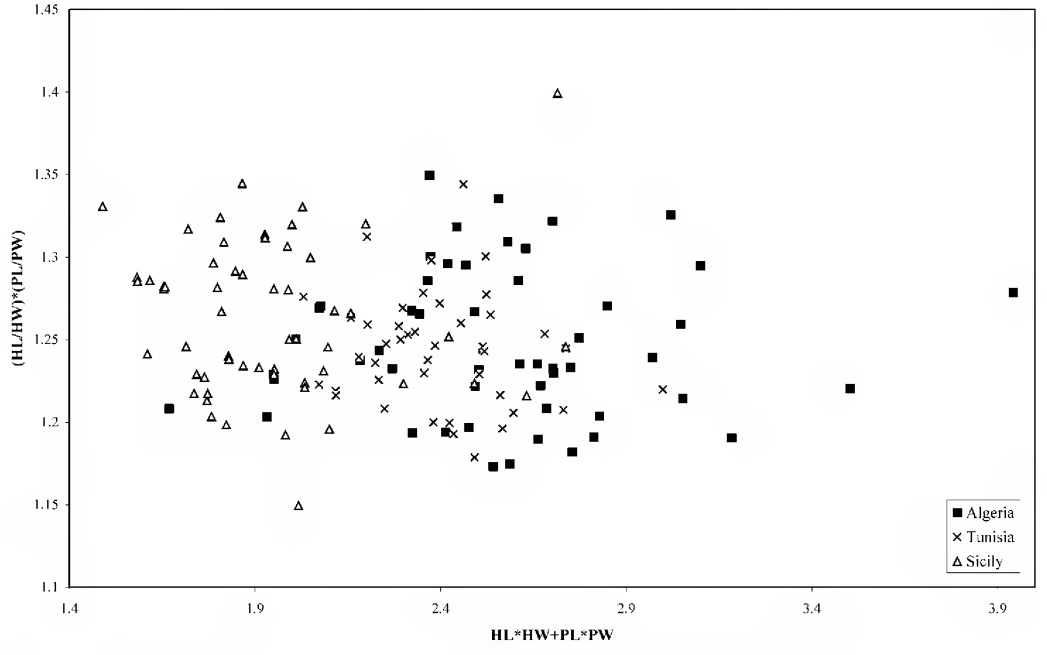


Fig. 172. *Leptobium densiventre* (Fauvel), body shape. "Slenderness" of head and pronotum in relation to body size (see chapter 2).

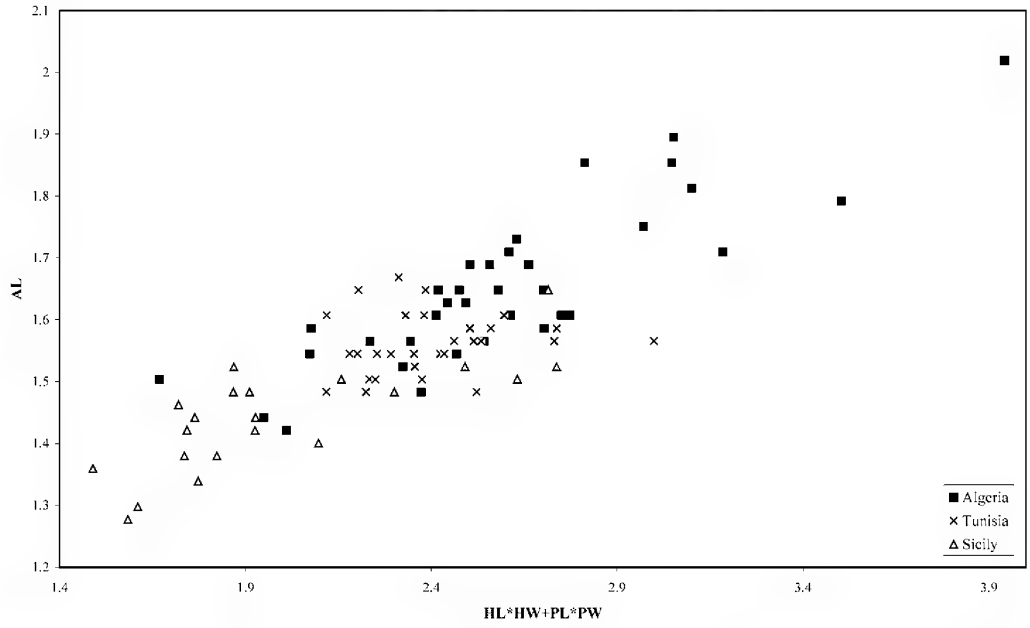


Fig. 173. *Leptobium densiventre* (Fauvel). Aedeagus length in relation to body size (see chapter 2).

Elytra moderately short (see ratio EL/PL); puncturation extremely variable, in most specimens approximately as dense as that of pronotum, but much shallower and less well-defined, sometimes very sparse. Hind wings reduced.

Abdomen approximately as wide as elytra; puncturation variable, ranging from very dense to moderately dense and shallow; microsculpture predominantly composed of transverse striae, on tergites VII and following also of transverse meshes; posterior margin of tergite VII with narrow rudiment of a palisade fringe.

♂: sternite VII with weakly modified pubescence, in posterior area without distinct median impression, with two extensive, but weakly pronounced and more or less distinctly delimited clusters of weakly modified setae, posterior margin variable, distinctly concave to almost straight (Figs. 165–169); sternite VIII with posterior incision not reaching middle (Figs. 150, 170); aedeagus of variable size and shape; dorsal plate of variable shape, slender to broad, with straight or convex lateral margins, apically acute, and dorsally with pronounced median carina; ventral process of very variable shape, weakly to distinctly transverse; parameres with numerous (15–20) subapical setae (Figs. 147–149, 151–159).

Intraspecific variation

Max/min ratios: HL: 1.58; HW: 1.62; PW: 1.67; PL: 1.67; EL: 1.61; TiL: 1.61; TaL: 1.67; AL: 1.58; HL/HW: 1.17; PW/HW: 1.20; PL/PW: 1.11; EL/PL: 1.21; TiL/TaL: 1.27.

As is usually the case especially with the more widespread species of the genus, *L. densiventre* is highly variable regarding many external characters (body size, relative eye size, density of puncturation), as well as regarding the size and shape of the aedeagus. The extent of intraspecific variation of size-related parameters is almost as high as in *L. illyricum*. Body size is, on average, higher in Algeria than elsewhere,

whereas the Sicilian populations are characterised by lower body size (Fig. 171). No clinal variation was observed regarding relative and absolute wing length (Fig. 171). The same is true of the body shape; the extent of variation is similar everywhere (Fig. 172).

The aedeagus is subject to enormous intraspecific variation, both in size and shape. Size variation is mainly allometric (Fig. 173). Populations with a long and slender dorsal plate of the aedeagus occur in Algeria and Sicily (Figs. 151–155); a broad, short, and often laterally somewhat curved dorsal plate was observed in populations especially from Tunisia and Sicily (Figs. 160–164). These extremes are, however, linked by transitional conditions (Figs. 156–159). Similarly, the diversity of the shape of the ventral process is enormous; it may be weakly to strongly transverse and apically it may be more or less angulate, rounded, or even distinctly concave (Figs. 150–164). The shape and chaetotaxy of the male sternite VII, too, is highly variable. Its posterior margin may be straight or distinctly concave and the clusters of modified setae may be distinct or practically obsolete (Figs. 165–169). The extent of variability of the external and sexual characters is truly remarkable, but in view of the presence of transitional conditions attributable to intra- rather than interspecific variation.

Comparative notes

The species is best distinguished from other species of the genus occurring in North Africa and with a similar coloration by the weakly modified male sternite VII and by the shape and the relatively large size of the aedeagus (pronounced dorsal carina on dorsal plate, weakly transverse ventral process).

Distribution and bionomics

The species is rather widespread in Northwest Africa, from Algeria to Libya, and Sicily (Fig. 174). For additional records from Sicily (as *L. siculum*) see ADORNO & SABELLA (1998) and SABELLA & ZANETTI (1991). Some of the examined specimens were collected in forests; for the vast majority of specimens, however, no ecological data are available. The species has been found at a wide range of altitudes, from sea-level up to 2100 m. It has been recorded almost throughout the year, with a maximum in the period from February through May and a second peak in late autumn (October through December) (Fig. 175). Teneral adults were collected in May, June, and November.

3.17 *Leptobium pominii* (Gridelli, 1949) (Figs. 174, 176–180)

Dolicaon pominii; GRIDELLI (1949: 162f.).

Type examined

Lectotype ♂, here designated: Gargano, Umbra, IV-950 F. POMINI / Typus / *Pominii* n. sp. det. GRIDELLI 1948 / *Dolicaon Pomini* n. sp. det. GRIDELLI 1949 / Lectotypus *Dolicaon pominii* Gridelli desig. V. ASSING 2004 (MCSNT).

Additional material examined (total, including type: 6 exs.)

Italy – Puglia: 1 ex., Foresta Umbra, 700 m, beechwood, 13.VII.1991, leg. ANGELINI (cAng); 2 exs., Foresta Umbra (FG), 800 m, 11.VII.1983, leg. ANGELINI (cAss, cRou); 1 ex., Foresta Umbra, 800 m, 6.V.1982, leg. ANGELINI (cAss); 1 ex., Foresta Umbra, VI.1963 (cZan).

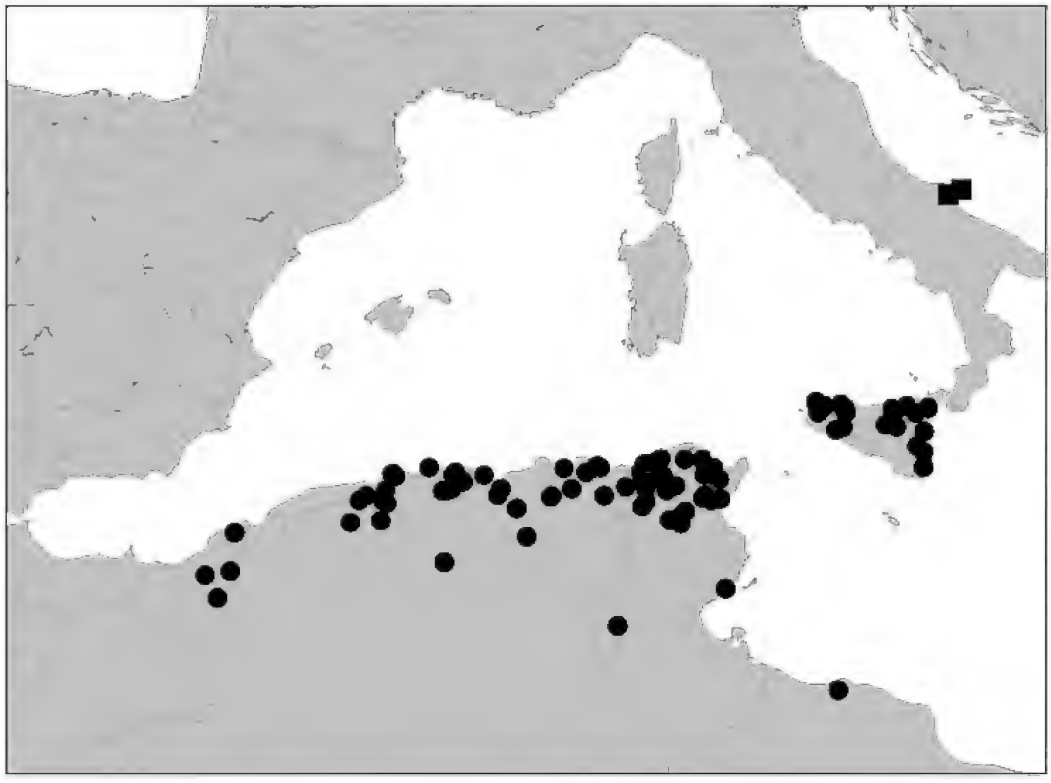


Fig. 174. Distribution of *Leptobium densiventre* (Fauvel) (●) and *L. pominii* (Gridelli) (■), based on revised records.

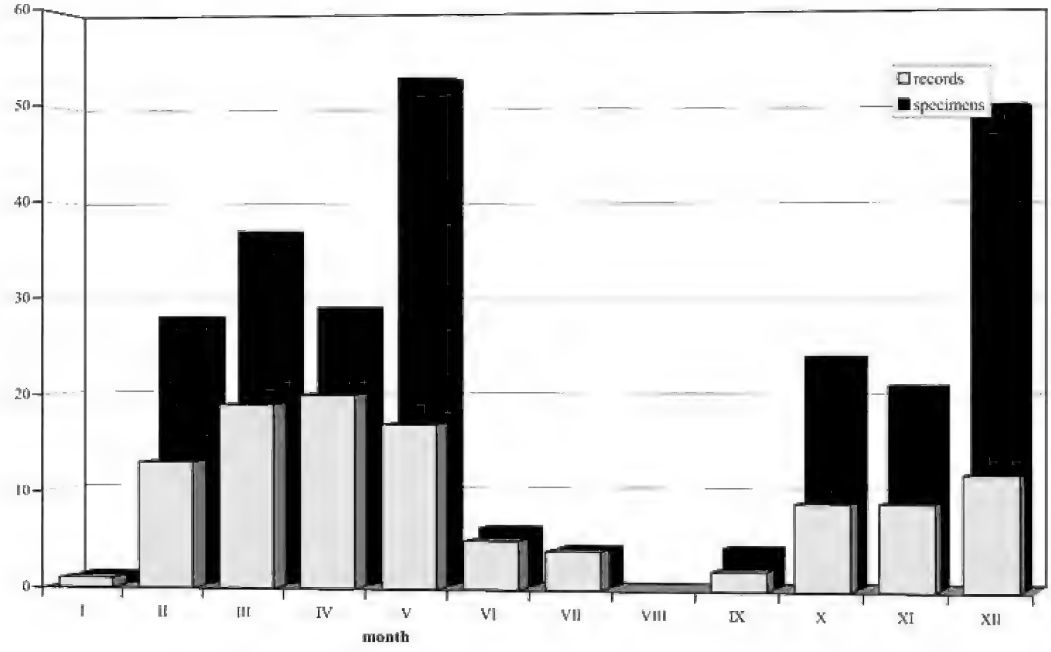


Fig. 175. *Leptobium densiventre* (Fauvel). Seasonal distribution of the examined specimens (black bars) and samples/records (grey bars).

Comments

The original description of this species is based on two male syntypes, one of which was located in the collection of the MCSNT; it is here designated as the lectotype.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 5): HL: 1.03–1.09, 1.07; HW: 0.96–1.03, 0.98; PW: 0.95–1.03, 0.98; PL: 1.11–1.19, 1.15; EL: 0.74–0.80, 0.76; TiL: 0.82–0.89, 0.85; TaL: 0.70–0.78, 0.74; AL: 1.40–1.48, 1.44; TL: 6.5–7.7, 7.0; HL/HW: 1.06–1.13, 1.09; PW/HW: 0.98–1.02, 1.00; PL/PW: 1.16–1.20, 1.17; EL/PL: 0.65–0.69, 0.66; TiL/TaL: 1.13–1.21, 1.15.

Habitus as in Fig. 176. Similar to *L. densiventre*, but distinguished as follows:

Eyes on average smaller, at most half the length of postocular region in dorsal view. Puncturation of head and pronotum usually finer and sparser, interstices on head on average 2–3 times a wide as punctures. Elytra with fine, sparse, and ill-defined, sometimes almost indistinct puncturation.

♂: shape and chaetotaxy of sternite VII similar to that of *L. densiventre* (Fig. 179); sternite VIII with posterior incision not reaching middle (Fig. 180); dorsal plate of aedeagus less slender than in average *L. densiventre*, with pronounced dorsal median carina; ventral process very robust (in lateral view) and less acute apically (Figs. 177–178).

Comparative notes

The only further brachypterous species occurring in Italy is *L. densiventre* from Sicily; for distinguishing characters see description above.

Distribution and bionomics

Leptobium pominii is endemic to the Monte Gargano in Puglia (Italy). Additional bionomic data are not available.

3.18 *Leptobium doderoi* (Gridelli, 1926) (Figs. 181–189)

Dolicaon doderoi; Gridelli (1926: 148ff.).
Leptobium ferreri; Coiffait (1982: 89, 123f.), **n. syn.**

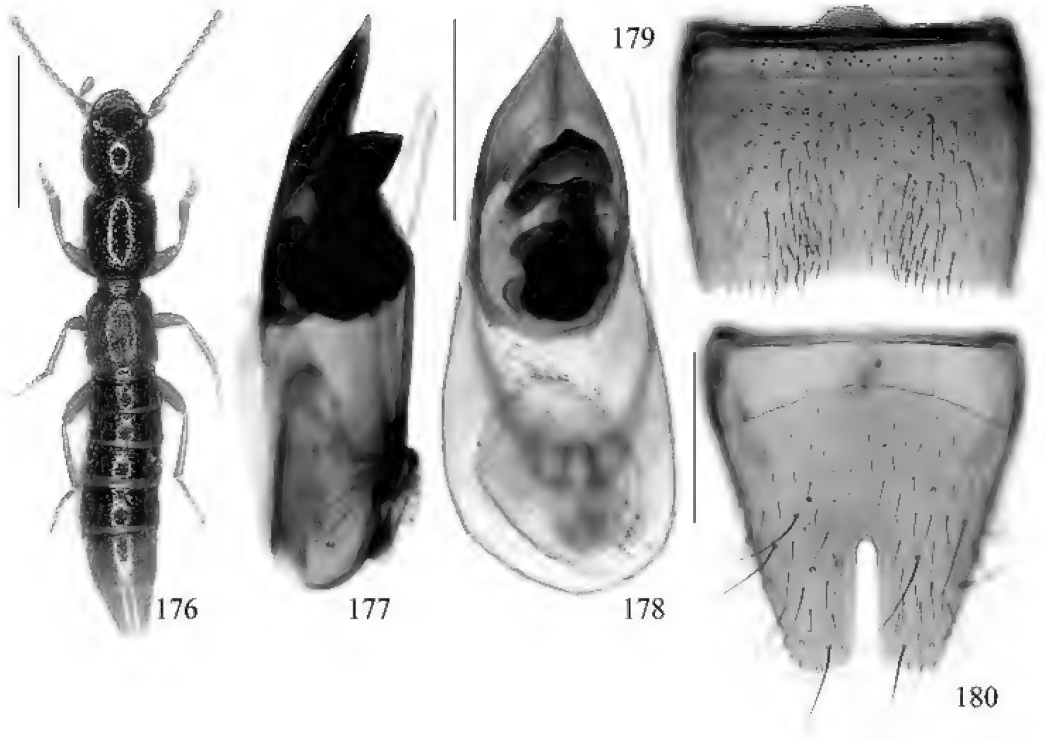
Types examined

D. doderoi: Holotype ♂: Portimão (Algarbe) / Typus / *doderoi* m. det. E. Gridelli / Collez. A. Dodero / Holotypus *Dolicaon doderoi* Gridelli, V. Gusarov rev. 1993 / *Leptobium doderoi* (Gridelli) V. I. Gusarov det. 1993 / *Leptobium doderoi* (Gridelli) det. V. Assing 2003 (MCSNG).

L. ferreri: Paratype ♀: Sa. de la Luna, Tarifa (Cádiz), J. de Ferrer leg. / Allotype / Museum Paris coll. H. Coiffait / *Leptobium vivesi* [sic], H. Coiffait det. 1982 (MNHNP).

Additional material examined (total, including types: 28 exs.)

Spain – Andalucía: 4 exs., Sierra de Luna (CA), 200–350 m, *Quercus ilex* forest, 28.III.1994, leg. Assing, Wunderle (cAss, cWun); 2 exs., Sierra de Luna, 27.V.1966, leg. Comellini (MHNG); 2 exs., Sierra de Luna, 28.V.1966, leg. Besuchet (MHNG); 1 ex., La Almoraina (CA), 29.V.1966, leg. Besuchet (MHNG); 2 exs., Tarifa (CA), I.1997, leg. Poot (cWun); 1 ex., Tarifa, IV.1992, leg. Poot (cWun); 2 exs., Tarifa, IV.1977, leg. Ullrich (MHNG, cAss); 3 exs., Tarifa, 10.IV.1974, leg. Ziegler (MHNG, cAss); 1 ex., Tarifa, Puerto de Ojén, 19.III.2002, leg. Assmann (cAss); 1 ex., Los Barrios, Puerto de Ojén, 23.III.2000, leg. Assmann (cFel); 1 ex., Tarifa, 8.IV.1969, leg. Comellini (cBor); 1 ex., Tarifa, 13.VII.1987, leg.



Figs. 176–180. *Leptobium pominii* (Gridelli). – **176.** Habitus. – **177–178.** Aedeagus in lateral and in ventral view. – **179.** Male sternite VII. – **180.** Male sternite VIII. – Scale bars: 2 mm (176), 0.5 mm (177–180).

Heinz (cKor); 1 ex., Cádiz, 5 km NW Tarifa, Punta Palomas, 36°04N, 5°40W, 20 m, 9.IV.2001, leg. Sprick (cAss); 1 ex., Tarifa, Torre de la Peña, 18.III.2002, leg. Günther (cFel); 1 ex., Algeciras, leg. Breit (NHMW). – Gibraltar: 1 ex., without further specifications (IRSNB).

Portugal – 1 ex. [with red pronotum], Algarve, E Lagos, XII.1997, leg. Reuter (cAss).

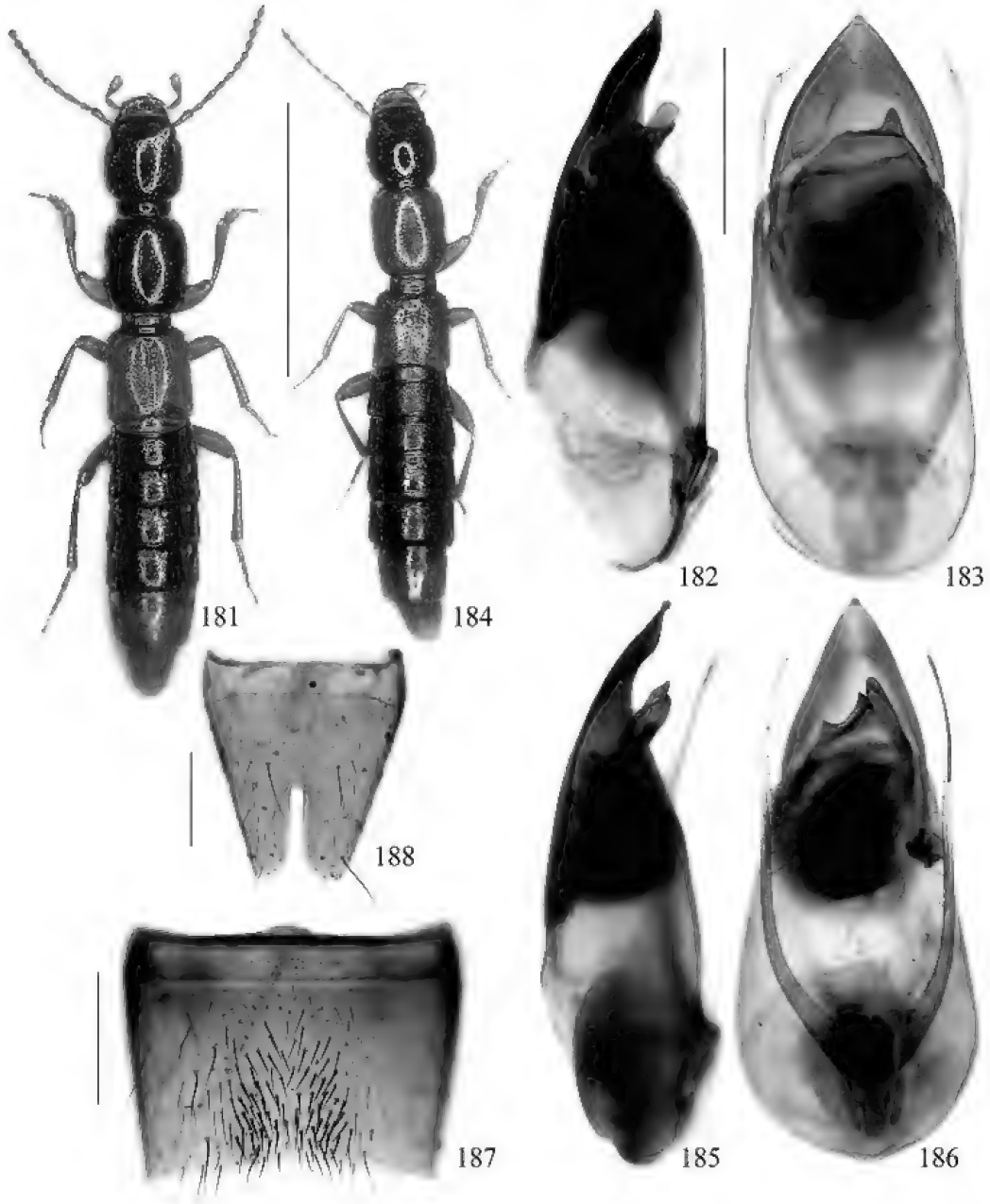
Comments

The name specified on the identification label of the paratype of *L. ferreri* ("*vivesi*") is clearly erroneous. A species with that name was never described, the collector of the specimen is J. Ferrer, and the locality data are in exact agreement with the data specified for the female paratype in the original description of *L. ferreri*. Since no evidence was found suggesting that *L. ferreri* and *L. doderoi* are different species, the former is here synonymised with the latter. Coiffait (1982) states that he had never seen the type or other material of *L. doderoi*.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 25): HL: 1.28–1.59, 1.45; HW: 1.17–1.44, 1.33; PW: 1.24–1.52, 1.37; PL: 1.42–1.79, 1.59; EL: 0.97–1.34, 1.19; TiL: 1.15–1.57, 1.38; TaL: 1.03–1.28, 1.15; AL: 1.48–1.65, 1.57; TL: 8.4–11.7, 10.3; HL/HW: 1.03–1.13, 1.08; PW/HW: 1.00–1.06, 1.03; PL/PW: 1.13–1.19, 1.16; EL/PL: 0.68–0.79, 0.74; TiL/TaL: 1.08–1.24, 1.15.

Very large species. In general appearance (coloration, size) similar to *L. illyricum* (Figs. 181, 184), but distinguished as follows:



Figs. 181–188. *Leptobium doderoi* (Gridelli) with black (181–183) and with reddish pronotum (184–188). – **181, 184.** Habitus. – **182–183, 185–186.** Aedeagus in lateral and in ventral view. – **187.** Male sternite VII. – **188.** Male sternite VIII. – Scale bars: 5 mm (181, 184), 0.5 mm (182–183, 185–188).

On average of greater body size (see measurements). Head on average more oblong; eyes on average slightly smaller, at most – but usually less than – half the length of postocular region; puncturation finer than in average *L. illyricum*. Antennae distinctly longer, antennomere III usually more than 1.5 times as long as II and almost 3 times as long as wide, antennomere IV about 1.5 times as long as wide. Pronotum with – on average – sparser and finer puncturation. Elytra usually longer in relation

to pronotum (see ratio EL/PL) and with sparser and finer puncturation. Legs longer (see measurements and ratio TaL/TiL). Abdomen with finer puncturation.

♂: sternite VII at most weakly modified (Fig. 187); sternite VIII as in Fig. 188; aedeagus relatively small and shaped as in Figs. 182, 183, 185, 186.

Intraspecific variation

Max/min ratios: HL: 1.24; HW: 1.23; PW: 1.23; PL: 1.26; EL: 1.38; TiL: 1.36; TaL: 1.24; AL: 1.11; HL/HW: 1.09; PW/HW: 1.06; PL/PW: 1.05; EL/PL: 1.15; TiL/TaL: 1.15.

Intraspecific variation of most characters is moderate. The most variable measured parameters are elytral length and leg length (see ratios above.). Remarkably, one of the specimens from southern Portugal has a bright reddish pronotum and was consequently assumed to represent a distinct species. However, other characters, including the morphology of the aedeagus (Figs. 182, 183, 185, 186), are within the range of intraspecific variation of *L. doderoi*. Moreover, the pronotum is of variable coloration also in other species (see *L. creticum*). Finally, if a distinct species of this size occurred in the south of the Iberian peninsula, it should have been collected more frequently; also, the locality where the specimen was found is very close to the type locality of *L. doderoi* (Fig. 189), so that an allopatric distribution can be ruled out. Therefore, the available evidence suggests that the coloration of the pronotum is variable and that the specimen from Lagos refers to *L. doderoi*.

Comparative notes

From *L. illyricum* and similar species, *L. doderoi* is distinguished especially by the long and slender antennae and legs, by the relatively long elytra, the relatively small eyes, and above all by the morphology of the aedeagus.

Distribution and bionomics

The species has become known only from the surroundings of Tarifa in Andalucía (southern Spain) and from the Algarve (southern Portugal) (Fig. 189). For an additional record from southern Portugal (Algarve) see GAMA et al. (2000). In the Sierra de Luna, five specimens were sifted from the leaf litter of *Quercus ilex* forests. The examined material was collected at lower altitudes, between sea-level and 350 m, in January, March, April, May, July, and December.

3.19 *Leptobium juani* Coiffait, 1969 (Figs. 190–193, 202)

Leptobium juani; COIFFAIT (1969: 856, 882).

Types examined

Holotype ♂: Pego, 22.V.56, Pr. Alicante, H. COIFFAIT / Museum Paris coll. H. COIFFAIT / Holotype / *Leptobium juani* Coiff., H. COIFFAIT det. 1968 (MNHNP). – Paratypes: 1 ♀: Prov. Alicante, Pego, Sa. Juan, 23, 22.V.56, H. COIFFAIT (MNHNP); 1 ♂: Espagne, Pego (Alicante), J. DE TORRES-SALA (MNHNP).

Additional material examined (total, including types: 31 exs.)

Spain – Alicante: 1 ex., Sierra de Bernia, 800 m, 15.III.1995, leg. MEYBOHM (cAss); 2 exs., Sierra de Bernia [1 ex. found in nest of *Tetramorium* sp.], 27.XI.2003, leg. FORCKE (cAss); 4 exs., Col de Rates, 16.III.1978 (MHNG, cAss); 1 ex., Col de Rates, 14.III.1974 (MHNG); 2 exs., Col de Rates, 19.V.1966, leg. BESUCHET (MHNG); 9 exs., Sierra de Bernia, 26.III.1971, leg. MEYBOHM (SMNS, cAss); 2 exs., Sierra de Bernia, 17.IX.1972, leg. FÜLSCHER, LOHSE

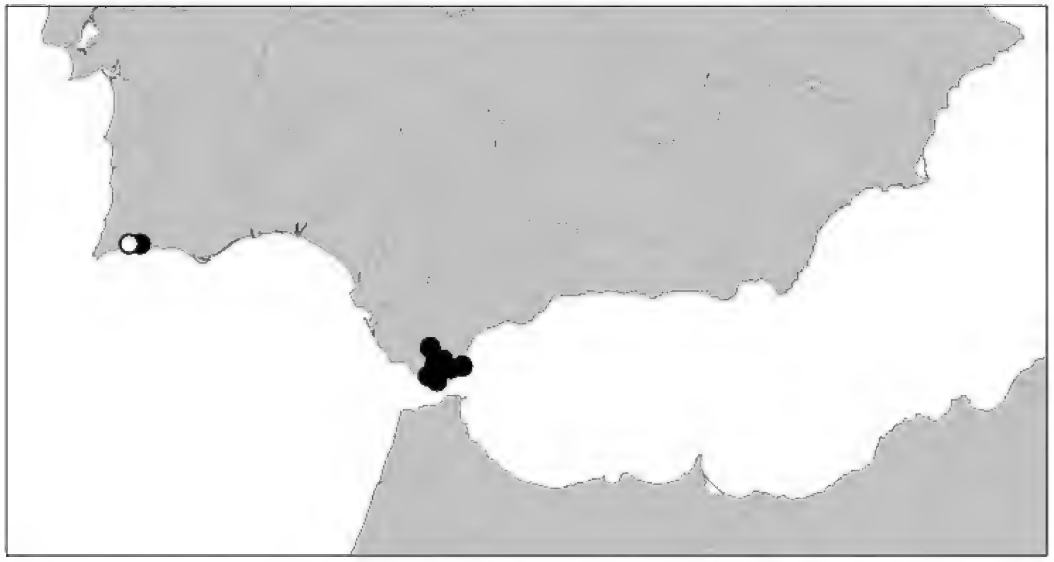


Fig. 189. Distribution of *Leptobium doderoi* (Gridelli), based on revised records (○ = locality where specimen with reddish pronotum was found).

(MHNG, cAss); 2 exs., Sierra de Aitana, Castell de Guadelest, 25.III.1971, leg. MEYBOHM (SMNS, cAss); 1 ex., same data, but 18.III.1978 (MHNG); 1 ex., same data, but 25.V.1975, leg. FÜLSCHER (MHNG); 1 ex., Sierra de Aitana, 17.III.1974, leg. MEYBOHM (cAss); 1 ex., same data, but 6.VII.1976, leg. FÜLSCHER (MHNG); 1 ex., Puerto de Tudons, 1100 m, 19.V.1966, leg. BESUCHET (cAss).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 21): HL: 0.95–1.19, 1.04; HW: 0.84–1.09, 0.94; PW: 0.81–1.11, 0.94; PL: 1.01–1.32, 1.12; EL: 0.66–0.93, 0.77; TiL: 0.74–1.01, 0.86; TaL: 0.62–0.93, 0.74; AL: 1.46–1.75, 1.55; TL: 5.4–8.6, 6.8; HL/HW: 1.05–1.15, 1.10; PW/HW: 0.94–1.02, 0.99; PL/PW: 1.15–1.24, 1.20; EL/PL: 0.62–0.72, 0.69; TiL/TaL: 1.07–1.24, 1.16.

Relatively small species (see measurements); habitus as in Fig. 190. Coloration: head, pronotum, and abdominal segments III–VI blackish; elytra and abdominal apex rufous, anterior margin of segment VII often more or less infuscate; legs and antennae reddish yellows.

Head distinctly oblong (see ratio HL/HW); eyes approximately half the length of postocular region in dorsal view, or slightly larger; puncturation moderately coarse and dense, interstices on average 1.5–2.5 times the width of punctures on dorsal surface; microsculpture absent. Antennae moderately long; antennomere III not or only slightly longer than antennomere II.

Pronotum distinctly oblong and approximately as wide as head (see ratios PW/HW and PL/PW); lateral margins subparallel or indistinctly tapering caudally in dorsal view; puncturation similar to that of head, but slightly denser; microsculpture absent.

Elytra moderately short (see ratio EL/PL); puncturation about as coarse and dense as that of pronotum, but somewhat less well-defined. Hind wings reduced.

Abdomen approximately as wide as elytra; puncturation relatively coarse and dense, but not very deep; microsculpture shallow, composed of transverse striae;

posterior margin of tergite VII without or with indistinct rudiments of a palisade fringe.

♂: sternite VII not distinctly modified (Fig. 193); sternite VIII with posterior incision moderately deep, not reaching middle; aedeagus relatively large; dorsal plate large, with distinct median carina dorsally; ventral process distinctly asymmetrical (Figs. 191, 192).

Intraspecific variation

Max/min ratios: HL: 1.26; HW: 1.29; PW: 1.27; PL: 1.31; EL: 1.41; TiL: 1.36; TaL: 1.50; AL: 1.20; HL/HW: 1.10; PW/HW: 1.08; PL/PW: 1.08; EL/PL: 1.15; TiL/TaL: 1.16.

Although this species has a very restricted distribution, many external characters, especially the size of the pronotum, the length of the elytra, and the length of the legs are subject to pronounced variation (see ratios above).

Comparative notes

For distinction from *L. colasi* from southern Spain and Portugal, the only other small congener with a similar coloration occurring in the Iberian peninsula, see the comparative notes in the following section.

Distribution and bionomics

The species has become known only from the surroundings of Alicante (Fig. 202). Bionomic data are scarce: one of the specimens listed above was collected at an altitude of 800 m; one specimen was collected in a nest of *Tetramorium* sp., but a closer association with this ant is not likely. Altitudes are specified on only two labels: 800 and 1100 m. The examined specimens were collected in March, May, July, September, and October.

3.20 *Leptobium colasi* (Coiffait, 1954) (Figs. 194–202)

Dolicaon (Leptobium) colasi; Coiffait (1954: 97).

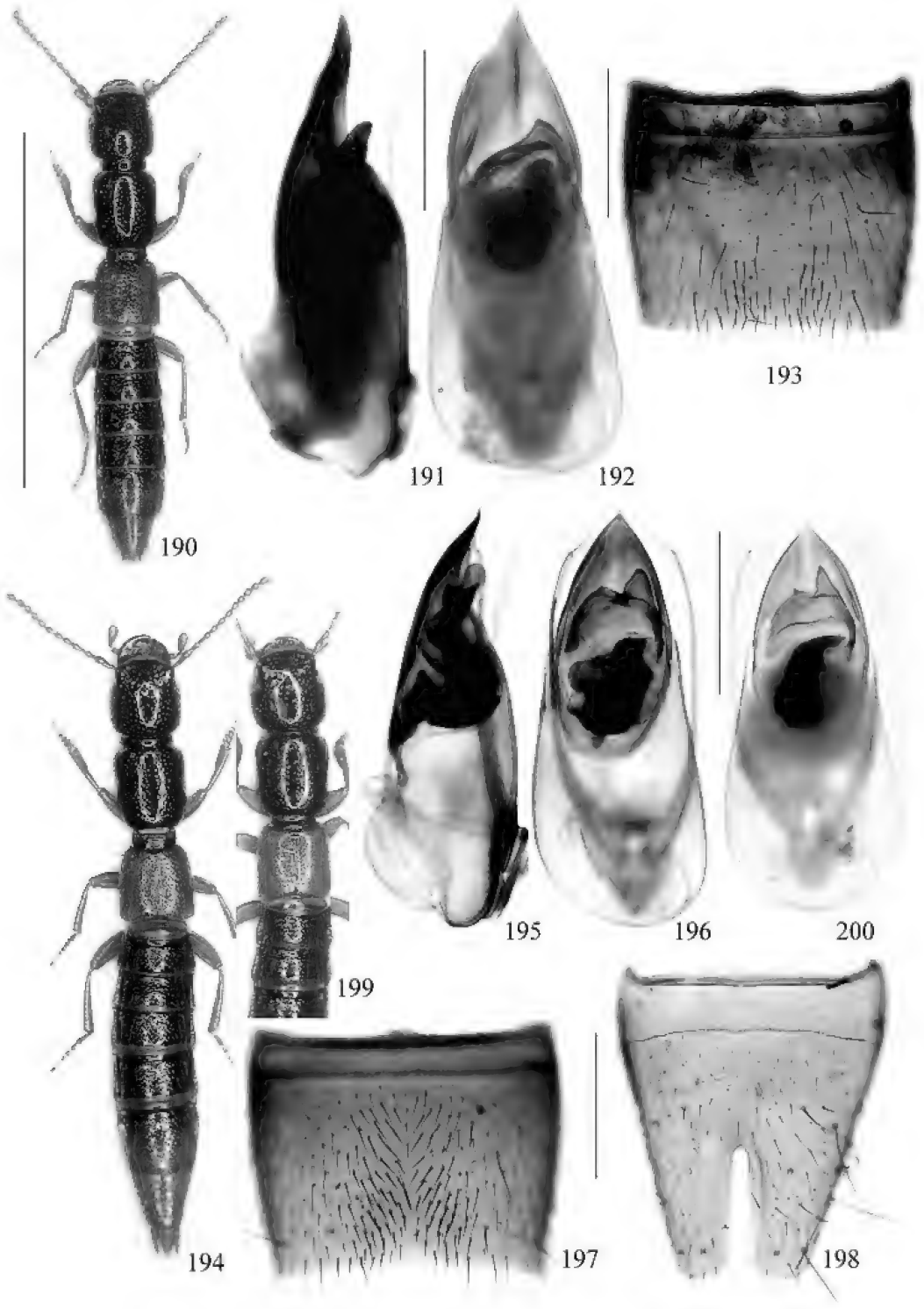
Type examined

Holotype ♂ [aedeagus missing]: Andalousie, Benaojan, H. Coiffait, 5-52 / Museum Paris coll. H. Coiffait / Holotype / *colasi* (MNHNP).

Additional material examined (total, including types: 28 exs.)

Spain – Andalucía: 3 exs., Cortes de la Frontera, Peñón del Berrueco, 36°37N, 5°25W, 700 m, cork tree forest, 19.II.2000, leg. Lompe & Meybohm (cAss); 1 ex., Cádiz, Sierra de Luna, 200 m, 28.III.1994, leg. Assing (cAss); 1 ex., Cádiz, locality illegible, leg. Ramos (MNHNP); 7 exs., Cádiz, Pto. del Boyar, 25. and 30.V.1984, leg. Tronquet (cTro, cAss); 1 ex., Cádiz, Ubrique, Sierra Ubrique, 17.III.2002, leg. Assmann (cAss); 1 ex., Cádiz, San Roque, 28.V.–4.VI.1991, leg. Wrase (cSch); 1 ex., Huelva, Los Ancillos, 21.V.1957, leg. Gonzáles (cAss); 1 ex., Algeciras (NHMW). – Estremadura: 1 ex., Cáceres, Plasencia, IV.1990, leg. Poot (cAss). – Castilla-León: 1 ex., Sierra de Gredos, Puerto del Pico, 15.VI.1971, leg. Curti (MHNG). – ?Aragón [confusion of labels?]: 1 ex., Teruel, Villar del Cobo, 12.VII.1958, leg. Comellini (MHNG). – Gibraltar: 1 ex., The Upper Rock Nature Reserve, between cablecar station and south peak, 36°08′30N, 5°20′41W, 350 m, N-slope, litter below shrubs, 5.II.1999, leg. Zerche (DEI). – Locality not specified: 2 exs., "Spanien" (DEI); 1 ex., "Hispan." (DEI).

Portugal – Alentejo: 3 exs., Beja, Alvito, XII.1997, leg. Poot (cWun, cAss); 1 ex., Alvito, 22.–31.XI.1997, leg. Poot (cWun).



Figs. 190–200. *Leptobium juani* Coiffait (190–193) and *L. colasi* (Coiffait) (194–200) (194–198: Andalucía; 199–200: Portugal). – **190**, **194**, **199**. Habitus. – **191–192**, **195–196**, **200**. Aedeagus in lateral and in ventral view. – **193**, **197**. Male sternite VII. – **198**. Male sternite VIII. – Scale bars: 5 mm (190, 194, 199), 0.5 mm (191–193, 195–198, 200).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 24): HL: 0.97–1.24, 1.10; HW: 0.91–1.11, 1.00; PW: 0.89–1.09, 0.98; PL: 1.03–1.26, 1.14; EL: 0.68–0.89, 0.80; TiL: 0.78–0.99, 0.89; TaL: 0.66–0.87, 0.75; AL: 1.26–1.48, 1.32; TL: 5.9–9.0, 7.7; HL/HW: 1.06–1.15, 1.10; PW/HW: 0.93–1.02, 0.98; PL/PW: 1.11–1.23, 1.16; EL/PL: 0.66–0.76, 0.70; TiL/TaL: 1.09–1.29, 1.18.

Very variable species. Of similar size as *L. juani* (see measurements); habitus as in Figs. 194, 199. Coloration: head, pronotum, abdominal segments III–VI, and anterior $^1/_7$ to $^1/_3$ of abdominal segment VII blackish; elytra and abdominal apex rufous; legs and antennae reddish yellow.

Head distinctly oblong (see ratio HL/HW); eyes approximately half the length of postocular region in dorsal view, or somewhat larger; puncturation very variable, mostly moderately or very coarse and relatively dense, with the interstices on average about as wide as punctures, but occasionally rather sparse; microsculpture absent. Antennae moderately long; antennomere III distinctly (but less than 1.5 ×) longer than antennomere II.

Pronotum moderately oblong and approximately as wide as head (see ratios PW/HW and PL/PW); lateral margins weakly tapering caudad in dorsal view; puncturation denser than that of head; microsculpture absent.

Elytra moderately short (see ratio EL/PL); puncturation usually somewhat denser and finer than that of pronotum. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation variable, usually rather coarse and dense; microsculpture composed of transverse striae, on posterior tergites also of transverse meshes; posterior margin of tergite VII without or with indistinct rudiments of a palisade fringe.

♂: sternite VII in posterior median area with sparse dark stout setae (Fig. 197); sternite VIII with posterior incision not reaching middle (Fig. 198); dorsal plate of aedeagus almost symmetrical, with two weakly pronounced dorsal carinae; ventral process strongly asymmetrical and bidentate: with a large tooth-like projection on the right (ventral view) and a small dent in the middle (Figs. 195, 196, 200).

Intraspecific variation

Max/min ratios: HL: 1.28; HW: 1.23; PW: 1.25; PL: 1.22; EL: 1.30; TiL: 1.26; TaL: 1.31; AL: 1.18; HL/HW: 1.08; PW/HW: 1.10; PL/PW: 1.11; EL/PL: 1.16; TiL/TaL: 1.18.

The species is extremely variable. Specimens from Andalucía have a coarse puncturation, and relatively smaller eyes (Fig. 194), whereas in material from Portugal the head is less distinctly quadrangular, the eyes may reach almost 0.7 times the length of postocular region, and the puncturation is often rather fine, with the interstices on the head on average 2–3 times as wide as punctures (Fig. 199). In addition, body shape is on average less slender in material from Portugal, but there are no distinct differences in average body size (Fig. 201). Among the measured characters, head length, elytral length, and the length of the legs are the most variable parameters.

Comparative notes

From *L. juani*, the only other Iberian representative of the genus of similar size and with a similar coloration pattern, *L. colasi* is distinguished by the relatively longer antennomere III, the usually more distinctly bicoloured abdominal segment

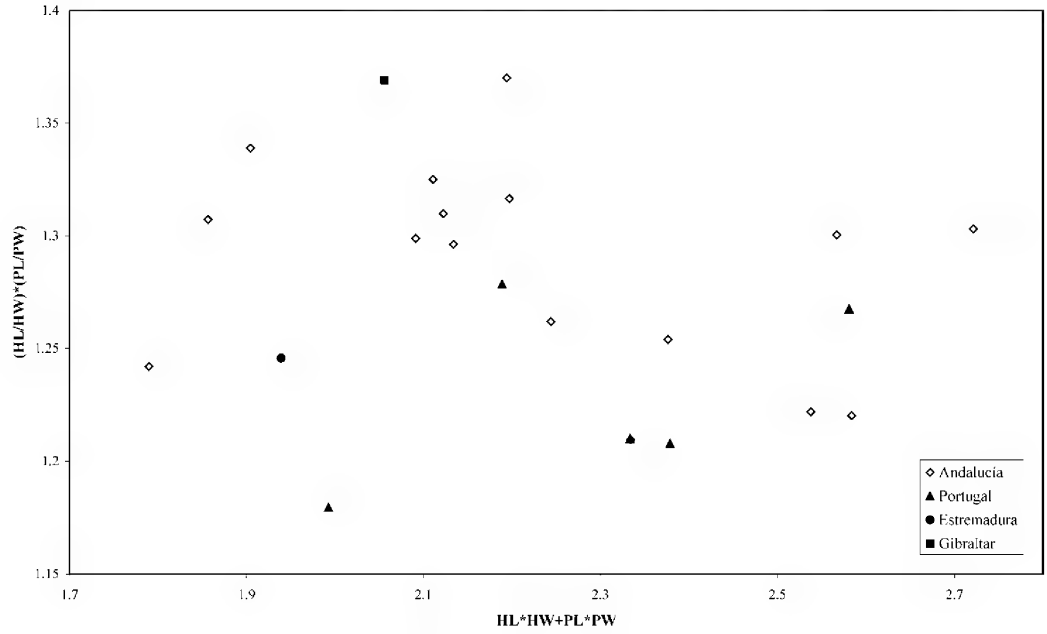


Fig. 201. *Leptobium colasi* (Coiffait), body shape. "Slenderness" of head and pronotum in relation to body size (see chapter 2).

VII, the denser and coarser puncturation (at least in material from Andalucía), and especially the completely different shape (dorsal plate with two carinae; shape of ventral process) and smaller size of the aedeagus.

Distribution and bionomics

Leptobium colasi is known from southern Portugal and southern Spain (Andalucía, Gibraltar); the records from Estremadura and Castilla y León are based on females and consequently not absolutely reliable (Fig. 202). According to the labels attached to one of the specimens examined, it was collected near Teruel (Aragón). This locality, however, would be far outside the known range of the species and should be considered doubtful until it is confirmed; it does not seem unlikely that the labels were confused. At least some of the material listed above was sifted from the leaf litter of oak forests; one specimens was sifted from the litter of macchia. Only few labels specify altitude data; the corresponding specimens were found between 200 and 700 m. The examined material was collected in late winter and spring (February through June) and in December.

3.21 *Leptobium assingi* Bordoni, 1994 (Figs. 203–215)

Leptobium assingi; Bordoni (1994: 30f.).

Types examined

Holotype ♂: TR – Antalya, 0–50 m, Umg. Manavgat, 24, 04.I.1991, Assing / Holotypus / *Leptobium assingi* n. sp. Bordoni det. 92 (cAss). – Paratypes: 2 ♀♀: same data as holotype (cAss); 1 ♀: Türkei – Antalya, Umg. Alanya, Avsallar, 5.1989, Melber (cAss); 2 ♂♂, 1 ♀: 1.1.–7.1.91, SW-TÜ, Umg. Manavgat, Kiselot, Pinusstreu, leg. P. Wunderle (cWun).

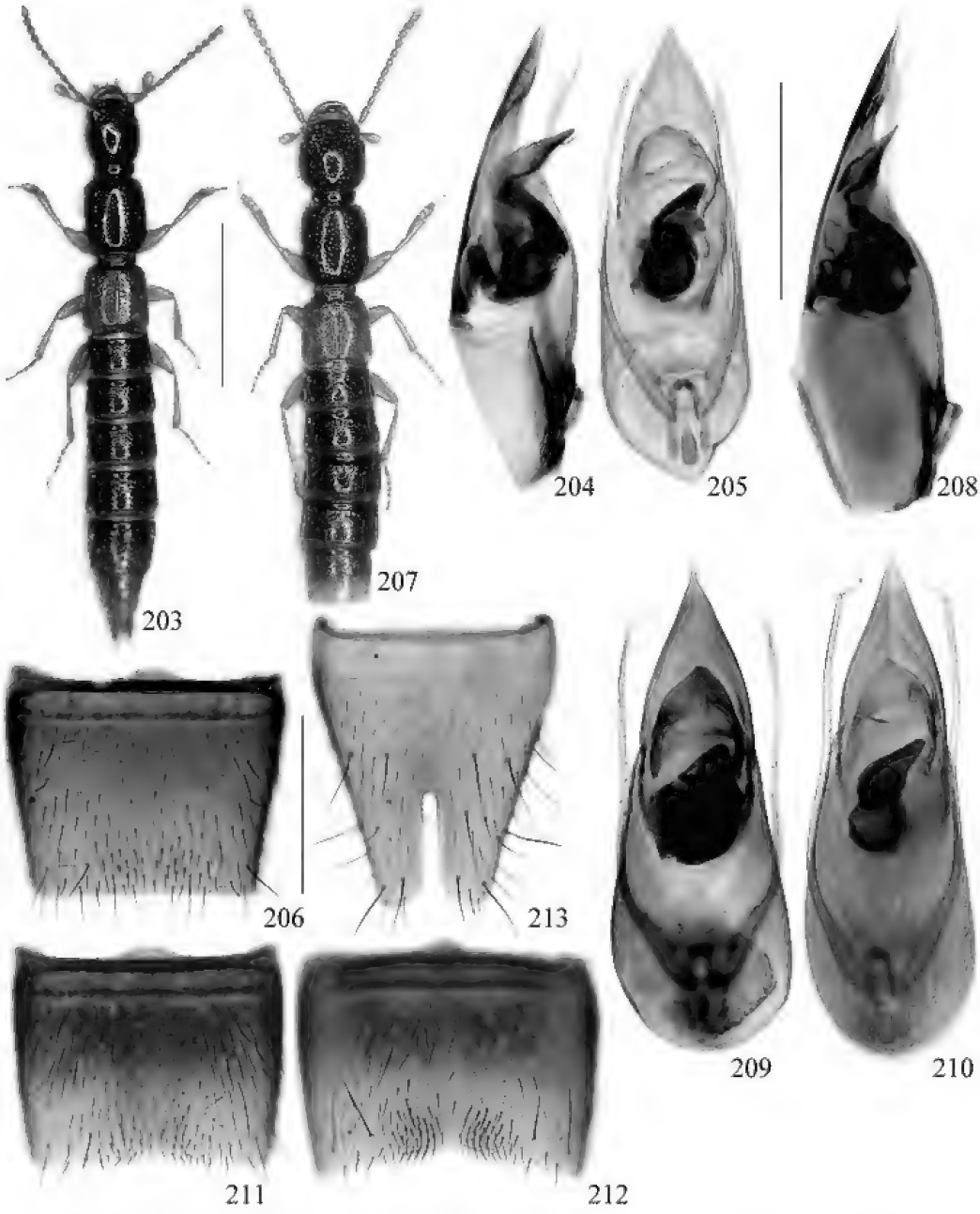
Fig. 202. Distributions of *Leptobium juani* Coiffait (■) and *L. colasi* (Coiffait) (●, ○), based on revised records (○ = records based exclusively on females; ? = doubtful record of *L. colasi* from Teruel).

Additional material examined (total, including types: 13 exs.)

Turkey – Gaziantep: 1 ex., 33 km E Osmaniye, NE Nurdağı Geç., 37°08′19N, 36°37′09E, 1520 m, 8.IV.2004, leg. ASSING (cAss); 1 ex., E Hasanbeyli, Nurdağı Geç., oak forest, 37°06′48N, 36°35′59E, 1025 m, 2.V.2002, leg. MEYBOHM (cAss). – Adana: 1 ex., road Osmaniye – Zorkum, 37°02N, 36°17E, 550–850 m, 25.IV.2002, leg. MEYBOHM & BRACHAT (cAss); 1 ex., Karatepe, Laurisilva, 200 m, 24.IV.–1.V.2002, 37°17′12N, 36°14′22E, leg. MEYBOHM & BRACHAT (cAss); 1 ex., Karatepe, 3.V.1967, leg. BESUCHET (cBor). – Antakya: 1 ex., near Iskenderun, IV.1963, leg. RESSL (NHMW).

Comments

BORDONI (1994) states that the three paratypes in my collection are one male and two females and that all of them were collected in one sample. However, all of them are in fact females and one was collected near Alanya by A. MELBER in 1989.



Figs. 203–213. *Leptobium assingi* Bordoni from Antalya (203–206) and from central southern Anatolia (207–213). – **203, 207**. Habitus. – **204–205, 208–210**. Aedeagus in lateral and in ventral view. – **206, 211–212**. Male sternite VII. – **213**. Male sternite VIII. – Scale bars: 2 mm (203, 207), 0.5 mm (204–206, 208–213).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 13): HL: 0.82–0.93, 0.87; HW: 0.72–0.92, 0.79; PW: 0.78–0.92, 0.82; PL: 0.93–1.03, 0.98; EL: 0.54–0.70, 0.62; TiL: 0.70–0.78, 0.74; TaL: 0.60–0.72, 0.66; AL: 1.05–1.26, 1.15; TL: 5.9–7.3, 6.6; HL/HW: 1.01–1.20, 1.10; PW/HW: 1.00–1.09, 1.04; PL/PW: 1.12–1.24, 1.19; EL/PL: 0.57–0.69, 0.63; TiL/TaL: 1.06–1.24, 1.13.

Small species (see measurements); habitus as in Figs. 203, 207. Coloration similar to that of *L. illyricum*, i. e. head, pronotum, and abdominal segments III–VI blackish, sometimes also the anterior part of segment VII somewhat infuscate; elytra and abdominal apex rufous; tergite VII either completely rufous or distinctly bicoloured with anterior half black and posterior half rufous; appendages reddish yellow.

Head weakly to distinctly oblong (see ratio HL/HW); eyes moderately large, approximately half the length of postocular region in dorsal view; puncturation moderately coarse and moderately sparse, interstices on dorsal surface on average about 2–3 times as wide as punctures; microsculpture absent. Antennae with antennomere III approximately as long as II or slightly longer.

Pronotum as wide as or slightly wider than head and more or less distinctly oblong (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation about as coarse as that of head, but denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation similar to that of pronotum, but less well-defined. Hind wings reduced. Tarsi relatively long, metatarsus only slightly shorter than metatibia.

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse striae; posterior margin of tergite VII without or with indistinct traces of a palisade fringe.

♂: sternite VII with weakly modified pubescence, in posterior median area with two more or less distinct clusters of rather sparse, slightly darker and stouter setae (Figs. 206, 211, 212); sternite VIII relatively slender (Fig. 213); aedeagus small, with almost symmetrical dorsal plate and ventral process (Figs. 204, 205, 208–210).

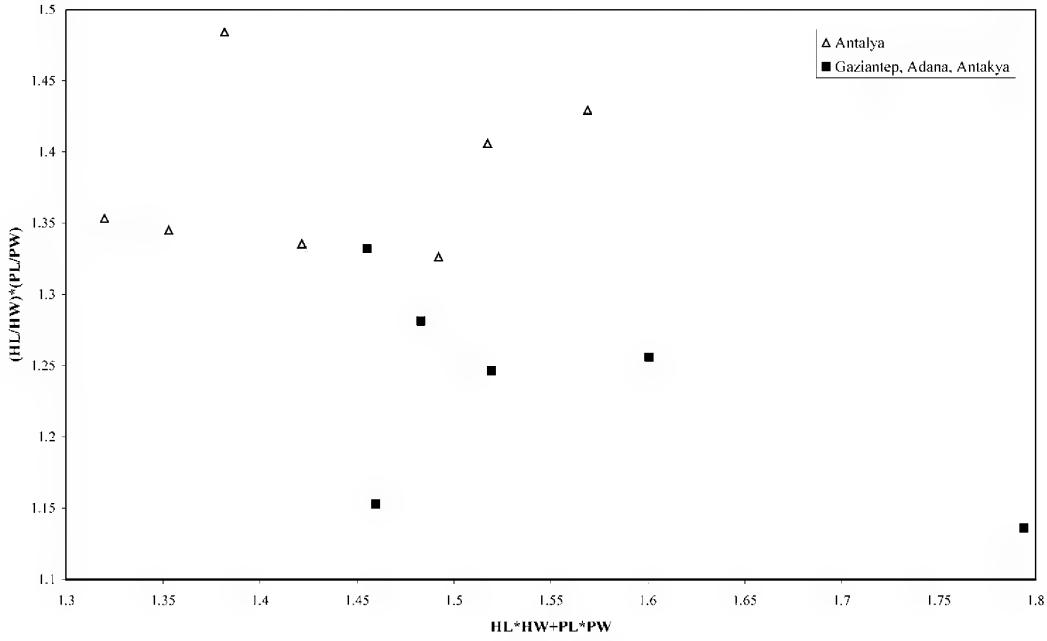


Fig. 214. *Leptobium assingi* Bordoni, body shape. "Slenderness" of head and pronotum in relation to body size (see chapter 2).

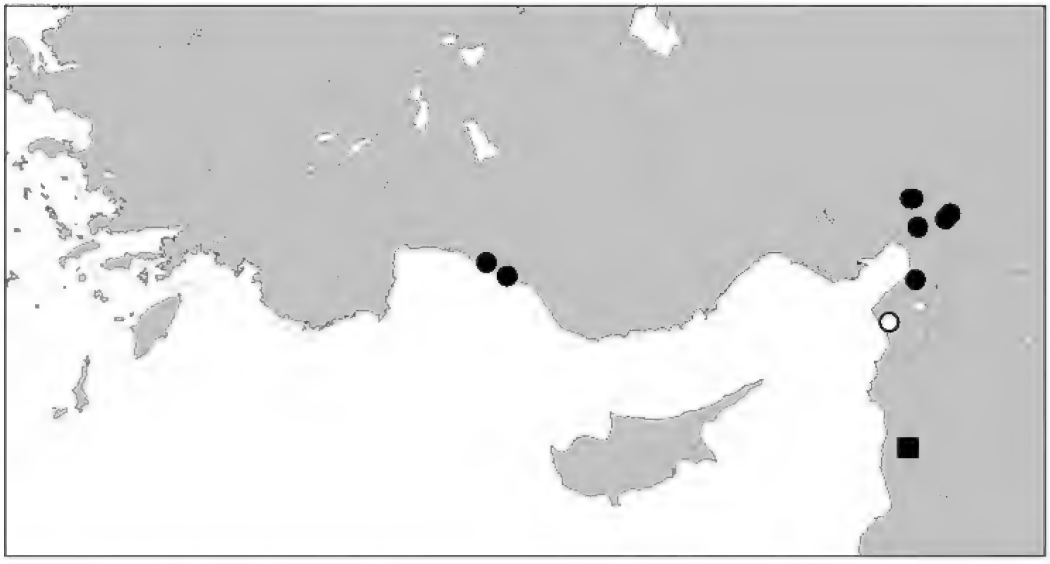


Fig. 215. Distributions of *Leptobium assingi* Bordoni (●), *L. korgei* n. sp. (■), and *L. schuelkei* n. sp. (○) in southern Turkey and the Middle East, based on revised records.

Intraspecific variation

Max/min ratios: HL: 1.13; HW: 1.27; PW: 1.17; PL: 1.11; EL: 1.31; TiL: 1.12; TaL: 1.21; AL: 1.20; HL/HW: 1.19; PW/HW: 1.09; PL/PW: 1.10; EL/PL: 1.21; TiL/TaL: 1.17. The specimens from Gaziantep, Adana, and Antakya are distinguished from the types by shorter elytra, a distinctly bicoloured abdominal segment VII (Fig. 207), additionally also by an – on average – less oblong head and pronotum (Fig. 214), the more distinctly modified male sternite VII (Figs. 206, 211, 212), and by a slightly larger aedeagus (Figs. 204, 205, 208–210). This extent of variation is not unusual in *Leptobium* species, so that they are here hypothesised to be conspecific. Both the chaetotaxy and the shape of the male abdominal sternite VII are remarkably variable. The posterior margin may be truncate or moderately concave, and the clusters of modified setae may be more or less distinct (Figs. 206, 211, 212).

Comparative notes

The geographically closest congeners of similar coloration and size are *L. korgei* (Syria), *L. schuelkei* (Turkey: Antakya), *L. ponticum* (Turkey: Sinop), and *L. tauricum* (northeastern Anatolia and Ukraine). From all these species, *L. assingi* is distinguished especially by the male sexual characters.

Distribution and bionomics

The known distribution of *Leptobium assingi* is disjunct and ranges from the surroundings of Manavgat in Antalya to Gaziantep and Antakya (Fig. 215). The material listed above was collected in oak forests, pine forests, and in laurisilva, partly by turning stones, at altitudes of 50–1520 m, in January, April, and May.

3.22 *Leptobium korgei* **n. sp.** (Figs. 215–220)

Type

Holotype ♂: Syrien, Umg. Qadmous [= Al Qadmus, 35°05N, 36°10E] / 700–1000 m, 11.IV.78, leg. HEINZ / Holotypus *Leptobium korgei* sp. n. det. V. ASSING 2003 (cAss).

Etymology

The species is dedicated to HORST KORGE, Berlin, in whose collection the holotype was discovered and to whom I am most grateful for the generous gift of the holotype.

Description

Measurements (in mm) and ratios (holotype): HL: 0.76; HW: 0.72; PW: 0.76; PL: 0.88; EL: 0.53; TiL: 0.66; TaL: 0.60; AL: 1.00; TL: 5.5; HL/HW: 1.06; PW/HW: 1.06; PL/PW: 1.15; EL/PL: 0.60; TiL/TaL: 1.10.

Small species (see measurements); habitus as in Fig. 216. In external and sexual characters highly similar to *L. assingi*, but distinguished as follows:

Smaller (see measurements). Eyes larger; postocular region only about 1.5 times as long as eyes in dorsal view. Abdominal tergite VII distinctly bicoloured, in posterior half reddish.

♂: sternite VII weakly transverse, almost as long as sternite VIII, very weakly modified, in posterior median area with indistinct cluster of sparse and slightly darkened setae (Fig. 219); sternite VIII as in *L. assingi* (Fig. 220); aedeagus small, dorsal plate apically less acute than in *L. assingi*, ventral process apically angled (Figs. 217, 218).

Comparative notes

The geographically closest congeners of similar size and coloration are *L. assingi*, *L. schuelkei*, and *L. bicarinatum*. From all these species, *L. korgei* is distinguished by the morphology of the aedeagus, especially the apically distinctly angled ventral process, from *L. schuelkei* also by much smaller size.

Distribution and bionomics

Leptobium korgei is known only from one locality in Syria (Fig. 215), where it was collected at an altitude of 700–1000 m.

3.23 *Leptobium schuelkei* **n. sp.** (Figs. 215, 221–223)

Type

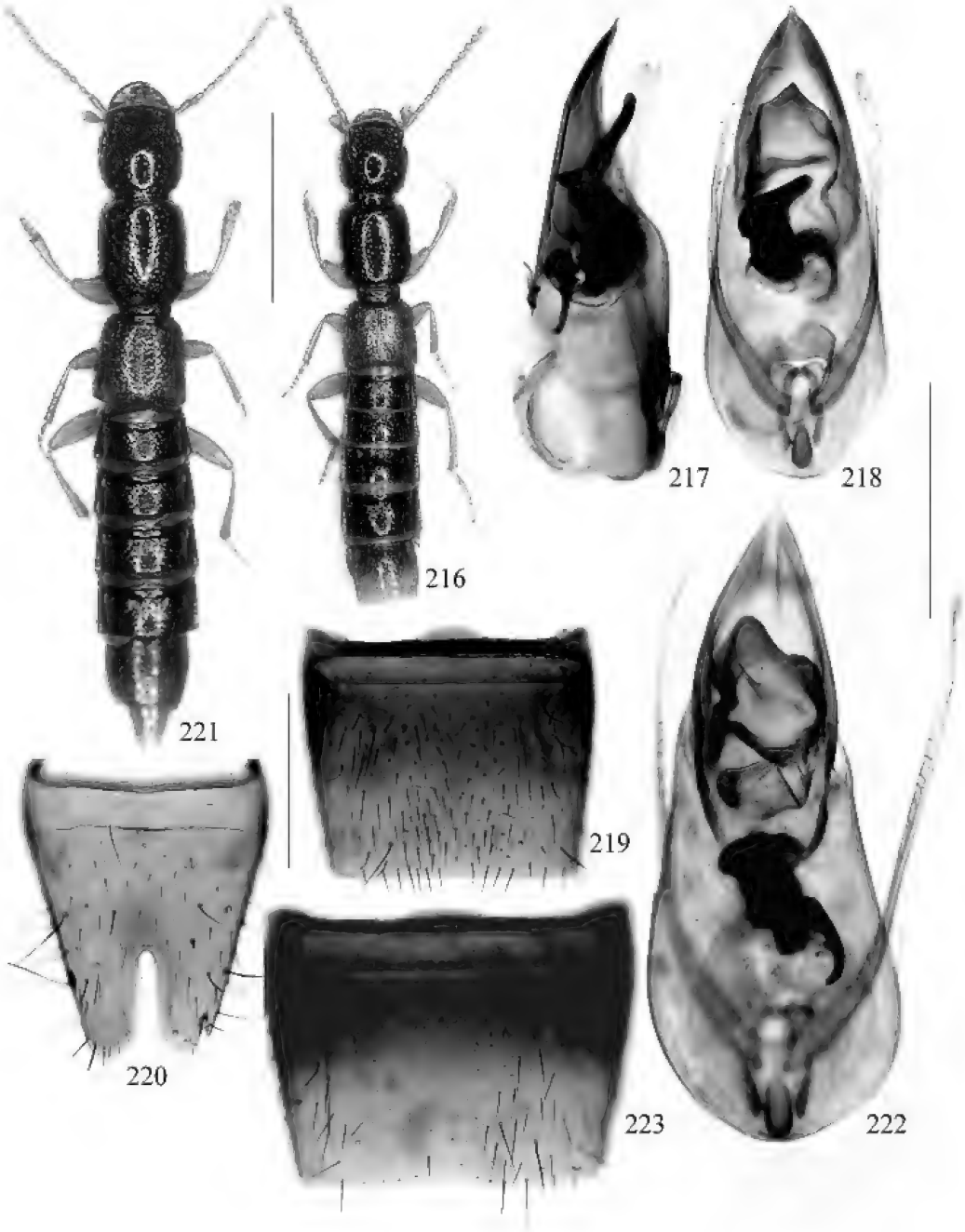
Holotype ♂: Turkey (Antakya) Kızıl Dağı, 19 km W Antakya, NW Teknepinar, 36°12′16″N, 35°57′46″E, 360 m, Creek bank, *Platanus*, dead wood, 3.IV.2004, leg. M. SCHÜLKE [T04-05] / Holotypus ♂ *Leptobium schuelkei* sp. n. det. V. ASSING 2004 (cAss).

Etymology

The species is dedicated to my friend and colleague MICHAEL SCHÜLKE, who collected the holotype and to whom I am most grateful for the generous gift of the holotypes of three of the species described in the present revision.

Description

Measurements (in mm) and ratios (holotype): HL: 1.01; HW: 0.95; PW: 0.99; PL: 1.17; EL: 0.72; TiL: 0.89; TaL: 0.76; AL: 1.32; TL: 6.9; HL/HW: 1.07; PW/HW: 1.04; PL/PW: 1.19; EL/PL: 0.61; TiL/TaL: 1.16.



Figs. 216–223. *Leptobium korgei* n. sp. (216–220) and *L. schuelkei* n. sp. (221–223). – **216, 221**. Habitus. – **217–218, 222**. Aedeagus in lateral and in ventral view. – **219, 223**. Male sternite VII. – **220**. Male sternite VIII. – Scale bars: 2 mm (216, 221), 0.5 mm (217–220, 222–223).

Species of moderately small size; habitus as in Fig. 221. Coloration similar to that of *L. illyricum*, with abdominal segment VII distinctly bicoloured (anterior half black, posterior half rufous).

Head with sparse puncturation; antennae short; eyes about half the length of postocular region in dorsal view. Pronotum, elytra, and abdomen not distinctive.

♂: sternite VII weakly modified (Fig. 223); sternite VIII with posterior incision not reaching middle; dorsal plate of aedeagus with pair of distinct dorsal carinae, ventral process short and distinctly asymmetric (Fig. 222).

Comparative notes

From the similarly coloured congeners occurring in southern Turkey, *L. schuelkei* is distinguished as follows:

from *L. illyricum* and *L. syriacum* by smaller size, smaller eyes (only *L. syriacum*), shorter antennae, a distinctly bicoloured abdominal segment VII, and the completely different morphology of the aedeagus (pair of dorsal carinae on dorsal plate, shape of ventral process);

from *L. assingi* by larger size, relatively shorter antennae, and a larger aedeagus with a ventral process of completely different shape.

Distribution and bionomics

Leptobium schuelkei is known only from one locality in Antakya, the Kızıl Dağı (Fig. 215). This mountain, which is of relatively low elevation, hosts two further locally endemic species of Staphylinidae: *Leptusa nurdaghensis* Assing and *Diochus hatayus* Assing (Assing 2003a, 2003b). As is suggested by the absence of further records, *L. schuelkei* has a restricted distribution and is apparently very rare. The holotype was sifted from leaf litter and dead wood near the bank of a stream at an altitude of 360 m.

3.24 *Leptobium sparsum* (Reitter, 1887) (Figs. 224, 225)

Dolicaon sparsus; Reitter (1887: 262f.).
Leptobium caucasicum; Coiffait (1969: 861, 875), synonymy by Gusarov (1991), here confirmed.

Types examined

D. sparsus: Syntypes: 1 ♀: Kaukasus Utsch Dere / coll. Reitter / *Dol. sparsus* m. (1887) Utsch Dere Circassien / Holotypus [sic] 1887 *Dolicaon sparsus* Reitter / Syntypus *Dolicaon sparsus* Rtt. A. Solodovnikov rev. 2000 / *Leptobium sparsum* (Rtt.) ♀, A. Solodovnikov det. 2000 (HNHM); 1 ♀: same data, but "Paratypus ..." (HNHM); 1 ♀: *Dolicaon sparsus* m., Utsch Dere, Circassien / collect. Eppelsh. (NHMW).

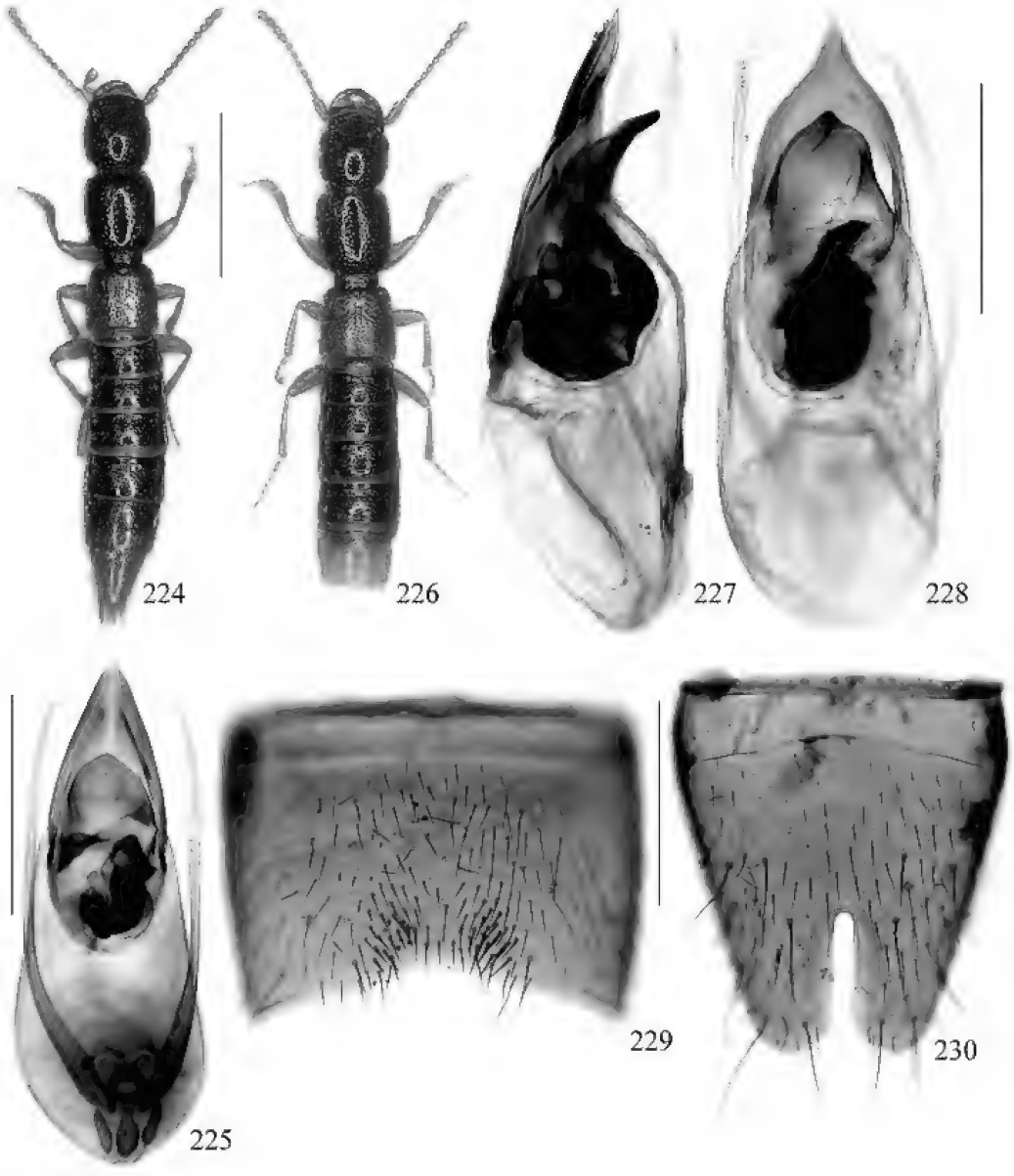
L. caucasicum: Holotype ♂: Caucasus, Swanetien, Leder. Reitter / Holotype / Museum Paris 1985 coll. H. Coiffait / *Leptobium caucasicum* Coiff. H. Coiffait det. 1969 / *Leptobium sparsum* (Reitt.) ♂, Gusarov det. 1990 (MNHNP).

Additional material examined (total, including types: 70 exs.)

NW-Caucasus – 2 exs., Russia, Krasnodar, Khadyzhensk, 7.V.1993, leg. Solodovnikov (cAss); 2 exs., Krasnodar, Ubinskaya, forest litter, 11.IX.1992, leg. Savitsky (cAss); 2 exs., Krasnodar, 1 km E Verkh. Bakanskiy, 6.VI.1990, leg. Gusarov (cTro); 1 ex., Krasnodar, Maykop env., 10.VII.1976, leg. Mosyakin (ZIN); 3 exs. [2 exs. teneral], Adygea, Maykop, X.1906 (ZIN); 1 ex., SU [= Soviet Union], Gorjači, Ključ, 10.VI.1981, leg. Arndt (MNHUB); 40 exs., "Caucasus occ., Circassien, Leder. Reitter" (DEI, HNHM, IRSNB, NHMW, SMNS, SMTD, ZIN, cAss, cSch); 3 exs., Utschdere (NHMW); 13 exs., "Caucasus, Swanetien, Leder. Reitter" (IRSNB, NHMB, NHMW, SMNS, SMTD, cAss).

Comments

The original description of *Dolicaon sparsus* is based on an unspecified number of syntypes from "Circassien: Utsch-Dere" (Reitter 1887), two of which were locat-



Figs. 224–230. *Leptobium sparsum* Reitter (224–225) and *L. tauricum* Gusarov (paratype) (226–230). – **224, 226.** Habitus. – **225, 227–228.** Aedeagus in lateral and in ventral view. – **229.** Male sternite VII. – **230.** Male sternite VIII. – Scale bars: 2 mm (224, 226), 0.5 mm (225, 227–230).

ed in the collections of the HNHM and the NHMW. Since both syntypes are females, a lectotype is not designated.

Coiffait (1969) based the original description of *L. caucasicum* on a single male. A comparison of this specimen with material of *L. sparsum* yielded no evidence suggesting that it should represent a distinct species, so that the synonymy previously proposed by Gusarov is here confirmed.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 49): HL: 0.89–1.03, 0.95; HW: 0.80–0.93, 0.86; PW: 0.83–1.01, 0.91; PL: 0.99–1.14, 1.05; EL: 0.60–0.74, 0.68; TiL: 0.76–0.89, 0.82; TaL: 0.62–0.76, 0.70; AL: 1.05–1.17, 1.10; TL: 5.7–7.1, 6.5; HL/HW: 1.05–1.15, 1.11; PW/HW: 1.01–1.09, 1.05; PL/PW: 1.12–1.21, 1.16; EL/PL: 0.60–0.68, 0.64; TiL/TaL: 1.08–1.28, 1.18.

Similar to *L. assingi*, but distinguished as follows:

Of slightly greater average size (see measurements); habitus as in Fig. 224. Abdominal segment VII bicoloured, anterior $^1/_2$–$^3/_4$ blackish, the remainder rufous; pronotum usually blackish, sometimes brown.

Eyes smaller and less prominent; postocular region about 2.5 times as long as eyes in dorsal view. Puncturation of pronotum sparser and almost as sparse as that of head.

♂: sternite VII unmodified; sternite VIII with posterior incision relatively short, only little more than $^1/_3$ the length of the sternite; aedeagus on the whole similar to that of *L. assingi*, but dorsal plate more slender in ventral view, stouter in lateral view, and with more strongly sclerotised lateral margins (ventral view); ventral process longer (Fig. 225).

Intraspecific variation

Max/min ratios: HL: 1.16; HW: 1.15; PW: 1.21; PL: 1.16; EL: 1.24; TiL: 1.16; TaL: 1.23; AL: 1.12; HL/HW: 1.10; PW/HW: 1.08; PL/PW: 1.08; EL/PL: 1.13; TiL/TaL: 1.18. Regarding coloration, puncturation, the morphology of the sexual characters, and all the measured size related characters, *Leptobium sparsum* is less variable than most of its congeners.

Comparative notes

The geographically closest congeners of similar size and coloration are *L. assingi*, *L. tauricum*, and *L. ponticum*. From all three species, *L. sparsum* is separated especially by the male sexual characters.

Distribution and bionomics

Leptobium sparsum is known from the Western Caucasus region. For additional data on the distribution of this species see Solodovnikov (1998a, 1998b). The material examined was collected during the periods from May through July and from September through October. Two specimens found in October are teneral. Apart from the specification "forest litter" no bionomic data are indicated on the labels attached to the specimens.

3.25 *Leptobium tauricum* Gusarov, 1988 (Figs. 226–231)

Leptobium tauricum; Gusarov (1988: 622ff.).

Types examined

Holotype ♂: Krim, southern shore, Ayu-Dag, 17.3.1979, leg. Mosyakin [transliterated from Cyrillic] / *Leptobium tauricum* V. Gusarov ♂ holotypus (ZIN). – Paratype ♂: Gurzuf, 1-XI.1924, leg. K. Arnoldi [transliterated from Cyrillic] (ZIN).

Additional material examined (total, including types: 5 exs.)

Ukraine – 1 ex., Alushta env., 16.IV.1965, leg. Kryzhanovsky (ZIN).

Turkey – 2 exs., Bursa, S Bursa, 500 m, 16.V.1976, leg. Besuchet & Löbl (MHNG, cAss).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 5): HL: 0.97–1.07, 1.01; HW: 0.89–0.99, 0.94; PW: 0.93–1.03, 0.98; PL: 1.04–1.19, 1.13; EL: 0.70–0.76, 0.73; TiL: 0.80–0.84, 0.82; TaL: 0.70–0.74, 0.72; AL: 1.42–1.48, 1.46; TL: 6.3–7.5, 6.8; HL/HW: 1.02–1.09, 1.07; PW/HW: 1.02–1.07, 1.04; PL/PW: 1.10–1.22, 1.15; EL/PL: 0.63–0.69, 0.65; TiL/TaL: 1.11–1.18, 1.14.

Externally indistinguishable from small specimens of *L. illyricum* (Fig. 226). Coloration as in *L. illyricum*; abdominal segment VII completely rufous or with anterior half infuscate.

Head weakly oblong (see ratio HL/HW); eyes about half the length of postocular region in dorsal view; puncturation relatively coarse and moderately dense, interstices on dorsal surface on average about 1–2 times as wide as punctures, median dorsal area with sparse puncturation; microsculpture absent. Antennae with antennomere III somewhat (but less than 1.5 ×) longer than II.

Pronotum slightly wider than head and moderately oblong (see ratios PW/HW and PL/PW); lateral margins weakly tapering caudad in dorsal view; puncturation about as coarse as that of head, but usually denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation shallow and ill-defined. Hind wings reduced.

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse striae and transverse meshes; puncturation of variable depth and density; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with concave posterior margin and posteriorly with two extensive clusters of dark setae (Fig. 229); sternite VIII with short posterior incision of little more than $^1/_3$ the length of sternite (Fig. 230); dorsal plate of aedeagus almost symmetrical; ventral process weakly transverse, almost symmetrical (Figs. 227, 228).

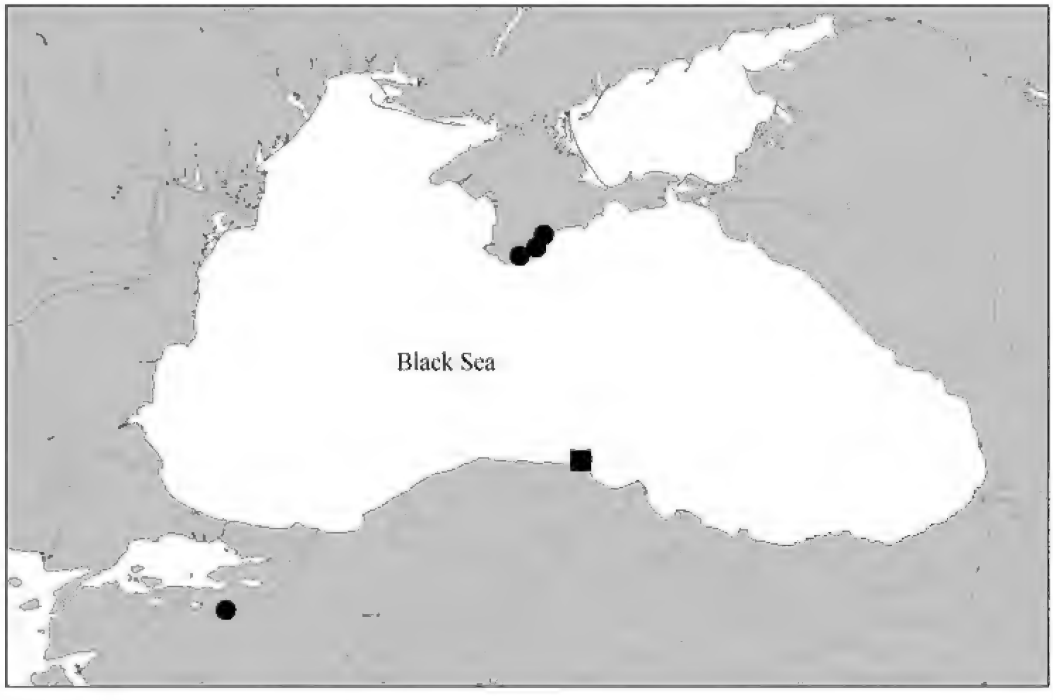


Fig. 231. Distributions of *Leptobium tauricum* Gusarov (●) and *L. ponticum* n. sp. (■), based on revised records.

Comparative notes

From *L. illyricum*, *L. tauricum* is distinguished by the more distinctly concave posterior margin of the male sternite VII and especially by the different shapes of the dorsal plate and the ventral process of the aedeagus. From *L. sparsum*, it is separated by the somewhat larger eyes, greater average body size, the shape and chaetotaxy of the male sternite VII, as well as by the morphology of the aedeagus (distinctly larger size, broader dorsal plate with less strongly sclerotised lateral margins, different shape of the ventral process).

Distribution and bionomics

The species is known from the Crimea and one locality in northwestern Anatolia (Fig. 231). The distribution and low number of records that have become known suggest that *L. tauricum* is apparently very rare. The material examined was collected in spring (March through May) and November. Apart from the dates and the altitude (500 m) specified on the labels of the Turkish specimens, no bionomic data are available.

3.26 *Leptobium ponticum* **n. sp.** (Figs. 231–236)

Types

Holotype ♂: Turquie Sinop, Lala près Sinop, 20.V.76, Besuchet Löbl / Holotypus ♂ *Leptobium ponticum* sp. n. det. V. Assing 2004 (MHNG).

Paratypes: 6 ♂♂, 5 ♀♀: same data as holotype (MHNG, cAss).

Etymology

The name (Latin) is an adjective derived from Pontus, the mountain range in northern Anatolia where the species is apparently endemic.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 12): HL: 0.84–0.93, 0.89; HW: 0.74–0.84, 0.81; PW: 0.76–0.89, 0.83; PL: 0.91–1.03, 0.98; EL: 0.54–0.66, 0.61; TiL: 0.64–0.74, 0.71; TaL: 0.52–0.62, 0.58; AL: 1.09–1.15, 1.13; TL: 6.0–7.3, 6.5; HL/HW: 1.05–1.14, 1.09; PW/HW: 1.00–1.05, 1.02; PL/PW: 1.15–1.22, 1.18; EL/PL: 0.59–0.67, 0.63; TiL/TaL: 1.17–1.26, 1.23.

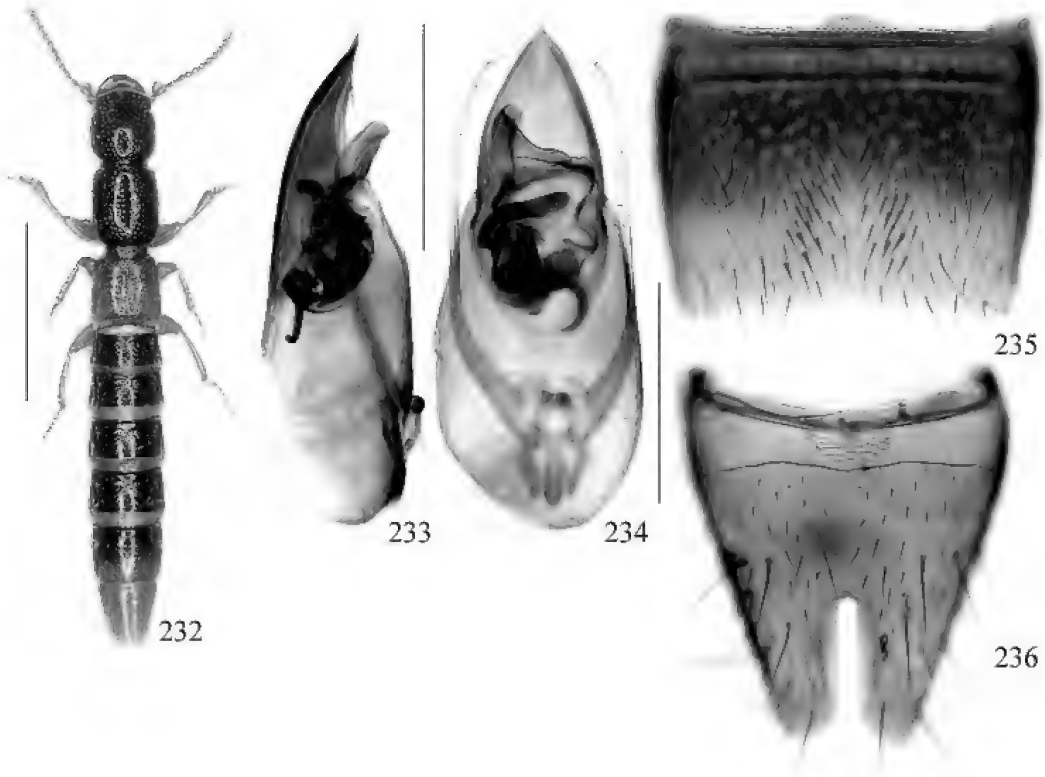
Small species (see measurements); habitus as in Fig. 232. Similar in general appearance to *L. sparsum* and *L. assingi*. Coloration: head, pronotum, and abdomen up to anterior half of segment VII black; elytra and abdominal apex (posterior half or third of segment VII and following segments) rufous; legs and antennae reddish yellow to yellowish brown.

Head weakly oblong (see ratio HL/HW); eyes about half the length of postocular region in dorsal view; puncturation relatively coarse and moderately dense, variable, interstices on dorsal surface on average about 1–3 times as wide as punctures, median dorsal area with sparse puncturation; microsculpture absent. Antennae with antennomere III about as long as II.

Pronotum approximately as wide as head and moderately oblong (see ratios PW/HW and PL/PW); lateral margins weakly tapering caudad in dorsal view; puncturation about as coarse as that of head, but usually denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation finer and distinctly less well-defined than that of head and pronotum. Hind wings reduced.

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse striae (segments III–VI) and transverse meshes (segments VII and follow-



Figs. 232–236. *Leptobium ponticum* n. sp. – **232.** Habitus. – **233–234.** Aedeagus in lateral and in ventral view. – **235.** Male sternite VII. – **236.** Male sternite VIII. – Scale bars: 2 mm (232), 0.5 mm (233–236).

ing); puncturation of variable depth and density; posterior margin of tergite VII without or with indistinct rudiments of a palisade fringe.

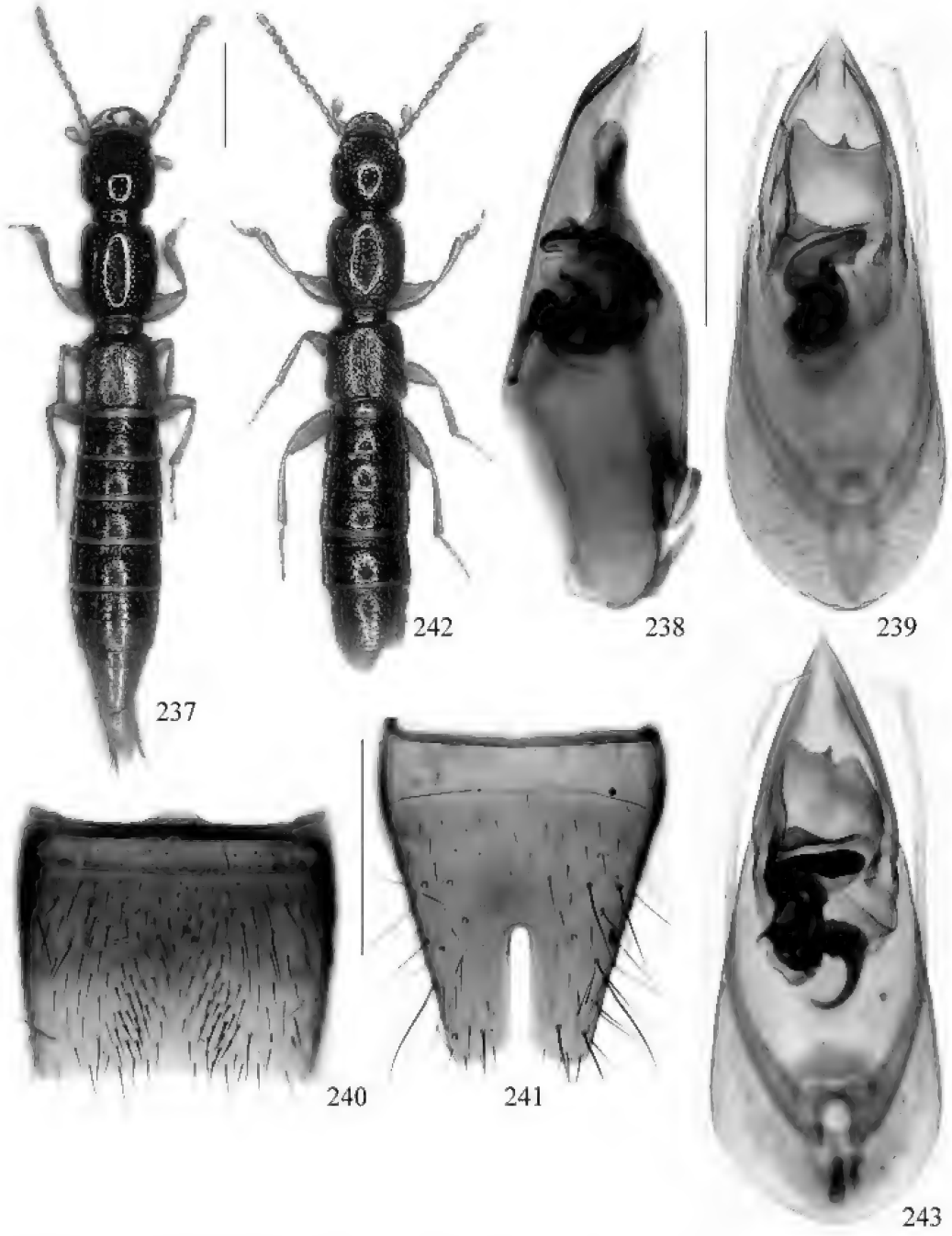
♂: sternite VII with very weakly concave posterior margin, posteriorly with depression and with two extensive clusters of dark setae (Fig. 235); sternite VIII with posterior incision almost reaching middle of sternite (Fig. 236); dorsal plate of aedeagus almost symmetrical, dorsally with pair of weakly pronounced carinae; ventral process distinctly asymmetrical and dorsally with lamella (Figs. 233, 234).

Comparative notes

The only geographically close congeners of similarly small size and of similar coloration are *L. sparsum* from the Caucasus and *L. assingi* from southern Anatolia. From both species, *L. ponticum* is readily distinguished by the broader aedeagus, with a much less slender dorsal plate and with a much more transverse and asymmetrical ventral process.

Distribution and bionomics

The species is known only from one locality in central northern Anatolia (Fig. 231), where the types were collected in May. No further data are available.



Figs. 237–243. *Leptobium bicarinatum* n. sp. from Antakya (237–241) (237: holotype) and from Syria (242–243). – **237**, **242**. Habitus. – **238–239**, **243**. Aedeagus in lateral and in ventral view. – **240**. Male sternite VII. – **241**. Male sternite VIII. – Scale bars: 2 mm (236, 242), 0.5 mm (237–241, 243).

3.27 *Leptobium bicarinatum* **n. sp.** (Figs. 237–245)

Types

Holotype ♂: TR – Antakya [12], 880 m, 19 km S Antakya, SW Şenköy, N-exp. pasture, 36°02′09N, 36°07′23E, 5.IV.2004, leg. V. Assing / Holotypus ♂ *Leptobium bicarinatum* sp. n. det. V. Assing 2004 (cAss).

Paratypes: 6 ♂♂, 4 ♀♀: same data as holotype (cAss); 1 ♂, 1 ♀: same data, but leg. Schülke (cSch); 1 ♂, 2 ♀♀: TR – Antakya [1], 920 m, 19 km S Antakya, SW Şenköy, *Q. ilex* & laurel, 36°01′48N, 36°07′19E, 2.IV.2004, leg. V. Assing (cAss); 1 ♂: Antakya [2a], 940 m, 19 km S Antakya, SW Şenköy, pasture, sifted grass, 36°00′32N, 36°07′13E, 2.IV.2004, leg. V. Assing (cAss); 2 ♀♀: Turkey (Antakya), Ziyaret Dağı, 19 km S Antakya, SW Şenköy, 36°01′48N, 36°07′19E, 913 m, E slope, oak & laurel shrubs, sifted, 5.IV.2004, leg. M. Schülke [T04-13] (cSch); 1 ♂: TR Antakya (1), Ziyaret Dag, W Senköy, 750 m, 36°18N, 36°07′18E, 21.4.2004, leg. Brachat & Meybohm (cAss); 1 ♂: TR – Antakya, 4, 25 km S Senköy, 900–930 m, 26.–27.IV.2002, 36°01N, 36°07E, Meybohm & Brachat (cAss); 2 ♂♂: TR – Antakya, 9, 25 km S Senköy, 901 m, sifted *Laurus* litter, 36°01′11N, 36°07′16E, 27.IV.2002, Meybohm (cAss); 1 ♂: TR – Antakya [4], 410 m, 17 km W Antakya, NW Teknepinar, pine, oak, etc., 36°11′18N, 35°58′56E, 3.IV.2004, leg. V. Assing (cAss); 1 ♂: TR – Antakya, 11, 383 m, Kizildag, NW Teknepinar, sifted, 36°11′16N, 35°58′57E, 28.IV.2002, leg. Meybohm (cAss); 2 ♂♂, 1 ♀: Anatolia mer., Heinz leg. / Umg. Yayladağı (Antakya), 400–800 m, 7.IV.1978 (cKor, cAss); 1 ♀: Anatolia mer., Heinz leg. / Umg. Yayladağı (Antakya), 600–900 m, 13.IV.1981 (cKor); 1 ♂, 1 ♀: Syr. b. oc., Aingara Wald/Feld, 20 km NW Aleppo, 20.IV.96, leg. Behne (DEI, cAss); 1 ♂: Akbés Syrie [probably identical with Akbez, Antakya] / Coll. et det. A. Fauvel, *Dolicaon semirufus* Fauv. / R.I.Sc.N.B. 17.479 (IRSNB).

Etymology

The name (Latin, adjective) refers to the pair of dorsal carinae on the dorsal plate of the aedeagus.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 29): HL: 0.74–0.87, 0.79; HW: 0.70–0.82, 0.73; PW: 0.70–0.89, 0.77; PL: 0.80–1.03, 0.89; EL: 0.52–0.66, 0.56; TiL: 0.64–0.78, 0.68; TaL: 0.56–0.68, 0.59; AL: 0.95–1.09, 1.02; TL: 5.4–6.9, 6.1; HL/HW: 1.04–1.14, 1.09; PW/HW: 1.00–1.11, 1.05; PL/PW: 1.11–1.22, 1.16; EL/PL: 0.58–0.69, 0.63; TiL/TaL: 1.10–1.25, 1.15.

Small species (see measurements); habitus as in Figs. 237, 242. In size and general appearance similar to *L. assingi*, but usually less distinctly bicoloured: head, abdominal segments III–VI, and anterior half (or third) of segment VII blackish brown to blackish; pronotum of variable coloration: in Turkish material brown to blackish brown, of same colour as head or lighter, and in Syrian material of same colour as elytra (Fig. 242); elytra and abdominal apex rufous; legs and antennae testaceous.

Head weakly oblong (see ratio HL/HW); eyes moderately large, usually slightly more than half the length of postocular region in dorsal view; puncturation and antennae as in *L. assingi*.

Pronotum slightly wider than head and moderately oblong, on average less oblong than in *L. assingi* (see ratios PW/HW and PL/PW); lateral margins subparallel or weakly tapering posteriad in dorsal view; puncturation about as coarse as that of head, but denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation distinctly finer, shallower, and denser than that of pronotum. Hind wings reduced. Tarsi relatively long, metatarsus only slightly shorter than metatibia (see ratio TaL/TiL).

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse striae; posterior margin of tergite VII without palisade fringe.

♂: sternite VII in posterior median area with two clusters of relatively sparse, dark, and stout setae (Fig. 240); sternite VIII as in Fig. 241; aedeagus highly distinctive, dorsal plate with two dorsal carinae and ventral process of characteristic shape (Figs. 238, 239, 243).

Intraspecific variation

Max/min ratios: HL: 1.17; HW: 1.18; PW: 1.26; PL: 1.28; EL: 1.28; TiL: 1.23; TaL: 1.22; AL: 1.15; HL/HW: 1.09; PW/HW: 1.11; PL/PW: 1.11; EL/PL: 1.18; TiL/TaL: 1.14. Pronotum size and elytral length are the most variable measured parameters. This species is also remarkable as far as variation of the coloration is concerned. This particularly applies to the pronotum, whose colour ranges from bright reddish to blackish, and to the head, which may be brown or black. Some variation was also observed regarding the shape of the dorsal plate and the ventral process of the aedeagus (Figs. 238, 243).

Comparative notes

From all its congeners, the species is readily distinguished by the highly distinctive morphology of the aedeagus, especially the shape of the ventral process. From *L. assingi*, which too occurs in southern Anatolia and which is often of similar coloration, it is additionally separated by the usually lighter coloration of the pronotum and the lower average size.

Distribution and bionomics

Leptobium bicarinatum has become known only from central southern Anatolia (Antakya) and from northwestern Syria (Fig. 244). The locality "Akbès" is somewhat ambiguous; it probably refers to Akbez in Antakya, but the possibility that it is identical with a locality now in Syria cannot be ruled out. Most of the types were found in laurel and oak forests and in pastures by sifting leaf litter or the roots of grass, or by turning stones, at altitudes of 380–930 m. The locality where the holotype and numerous paratypes were found is illustrated in Fig. 245.

3.28 *Leptobium artum* (Karsch, 1881) (Figs. 246–282)

Lathrobium artum; Karsch (1881: 45).
Dolicaon cribricollis; Fauvel (1869: 37), **n. syn.**
Dolicaon artus oleae; Koch (1937c: 267f.), **n. syn.**
Leptobium artum algiricum; Jarrige (1952: 121), **n. syn.**
Leptobium tingitanum; Coiffait (1969: 858, 874f.), **n. syn.**

Types examined

L. artum: Lectotype ♂, here designated: Bir Milrha, Exp. Rohlfs. / 60908 / *Dolicaon nigricollis* Woll. / Hist.-Coll. Coleoptera, 60908 / *Lathrobium artum* Karsch, Bir Milrha, Djebel Tarrhuna, Exped. Rohlfs, Zool. Mus. Berlin / *artum* Krsch* / Lectotypus *Lathrobium artum* Karsch desig. V. Assing 2004 (MNHUB). – Paralectotype ♂: *Lathrobium artum* Karsch, Bir Milrha, Djebel Tarrhuna, Exped. Rohlfs, Zool. Mus. Berlin / Paralectotypus *Lathrobium artum* Karsch desig. V. Assing 2004 (MNHUB).

D. cribricollis: Lectotype ♂, here designated: Tanger / Coll. et det. A. Fauvel. *Dolicaon cribricollis* Fauv. R.I.Sc.N.B. 17.479 / Ex-Typis / Lectotypus *Dolicaon cribricollis* Fauvel desig. V. Assing 2004 / *Leptobium artum* (Karsch) det. V. Assing 2004 (IRSNB). – Paralectotypes: 3 ♀♀: same data as holotype (IRSNB).

D. a. oleae: Lectotype ♂, here designated: El Gusbat, Trip. 6.5.1936, R. e C. Koch / Paratypus [sic] *Leptobium artum olae* [sic] Koch / Lectotypus *Dolicaon artus oleae* Koch desig. V.

Fig. 244. Distribution of *Leptobium bicarinatum* n. sp. in southern Turkey and Syria (○ = doubtful record from "Akbès").

Fig. 245. Locality near Antakya where the holotype and numerous paratypes of *Leptobium bicarinatum* n. sp. were collected (photo: M. SCHÜLKE)

ASSING 2004 / *Leptobium artum* (Karsch) det. V. ASSING 2004 (NHMB). – Paralectotypes: 7 ♀♀: same data as holotype (MCSNM, NHMB).

L. a. algiricum: Holotype ♂: Mansourah Alg. (DE VAUL.) / Type / *algiricus* Jarr. / Muséum Paris / *Leptobium artum* (Karsch) det. V. ASSING 2004 (MNHNP). – Paratype ♂: Mansourah, Alg. DE VAULOGER / Cotype / *Leptobium artum* s.sp. *algiricum* Jarr. J. JARRIGE det. / *Leptobium artum* (Karsch) det. V. ASSING 2004 (IRSNB).

L. tingitanum: Holotype ♂: 1897, Tanger / Holotype / *Leptobium tingitanus* [sic] Coiff. H. COIFFAIT det. 1969 / *Leptobium artum* (Karsch) det. V. ASSING 2004 (MNHNP).

Additional material examined (total, including types: 271 exs.)
(see also type material of *L. siculum*)

Morocco – 86 exs., Tanger, leg. QUEDENFELDT, etc. (DEI, HNHM, IRSNB, MHNG, MNHNP, MNHUB, NHMW, SMTD, ZIN, cAss); 1 ex., Tanger, 24.XI.1933, leg. NOVAK (MCSNT); 8 exs., 18 km SE Tanger, Hakkama, 250 m, arable land and fallows, 16.II.2003, leg. WRASE (cSch, cAss); 12 exs., Al-Hakkama, 35°08N, 5°41W, 100 m, arable land, fallow land, pastures, 26.II.2004, leg. ASSMANN, STARKE, WRASE (cAss, cFel, cSch); 3 exs., Tetuan (IRSNB); 1 ex., Tanger, Cape Spartel, 5.II.2001, leg. LACKNER (cHla); 1 ex., Tanger-Ceuta Rte., Ksar es Srhir, II.2001, leg. LACKNER (cAss); 3 exs., Ksar es Srhir, 17.III.1999, leg. LACKNER (cHla, cRou, cAss); 11 exs., Ksar es Srhir, 31.XII.1977, leg. MINET (cTro, cAss); 1 ex., Cape Malabata [35°49N, 5°45W], 28.XII.1977, leg. MINET (cTro); 1 ex., Larache-Lixus, 20.III.1999, leg. LACKNER (cAss); 5 exs., Beni Snassen range, Taforalt, 15.XII.1995, leg. LACKNER (cHla, cRou, cAss); 2 exs., Oued Sebou [34°16N, 6°41W], IV.1961, leg. COMELLINI (MHNG, cAss); 3 exs., Rif, 15 km SW Zinat, Tleta-des-Beni-Ydar-Cherki, arable land, 14.II.2003, leg. WRASE (cSch, cAss); 33 exs., locality not specified (DEI, MHNG, MNHUB).

Algeria – 1 ex., Constantine, 21.I.1929, leg. SCHATZMAYR (MCSNM); 4 exs., Constantine, III.1952, leg. BALLONI (MHNG, cAss, cBor); 11 exs., Constantine (IRSNB, MNHNP, MNHUB, cAss); 1 ex., Oran, Sidi bel Abbès (cAss); 1 ex., Philippeville [36°53N, 6°54E], III.1952 (cAss); 7 exs., St. Charles, leg. THERY (IRSNB, NHMB, SMTD, cAss); 1 ex., Algier (NHMW); 1 ex., Zaouia, Mouzaia (NHMW); 5 exs., Guelma (MNHNP, IRSNB, cAss); 12 exs., Bône (MNHNP, cBor); 6 exs., locality not specified or illegible (MNHNP, NHMW, SMTD, ZIN).

Tunisia – 1 ex., Ichkeul, meadow, 3.XII.1994 (cAdo); 2 ♀♀, Tamera, I.1937, leg. GROSSLAUDE (cTro).

Libya – 3 exs., Gharyan ["Garian"], 1.IV.1936, leg. KOCH (MCSNM); 20 exs., same data, but 31.III.1936 (MCSNM, NHMB, cAss); 2 exs., same locality, 22.III.1926, leg. SCHATZMAYR (MCSNM, MCSNT); 1 ex., Mizda, 26.III.1926, leg. SCHATZMAYR (MCSNM).

Locality not specified – 2 exs., "Medit. occid." (ZIN); 3 exs. (MNHNP).

Comments

The original description of *L. artum* is based on an unspecified number of syntypes, though there is at least circumstantial evidence that KARSCH had two specimens of different coloration before him ("Exemplum alterum prothoracem paulo pallidiorem, ..."). Accordingly, two syntypes were found in the collections of the MNHUB, one with black and one with rufous head and pronotum. The former is here designated as the lectotype in order to stabilise the present interpretation of the species. Both types are here considered conspecific, but the light-coloured morph has been described as a distinct subspecies and the possibility that the application of other methods, e. g. the analysis of DNA sequences, will show them to be distinct cannot be ruled out completely.

The original description of *Dolicaon artus oleae* is based on 15 syntypes, eight of which were found in the collections of the MCSNM and NHMB; in order to unambiguously define the species, the only male examined is here designated as the lectotype. According to KOCH (1937c), *D. a. oleae* is distinguished from the nominal subspecies especially by the rufous coloration of the pronotum; the aedeagus, however,

is identical. KOCH's conclusions are based only on two series of specimens from just two localities (El Gusbat, Garian), and the only constant difference being the coloration of the pronotum (El Gusbat: black; Garian: rufous). Considering that such colour dimorphisms are known also from other species and that the two type specimens of *L. artum*, which were collected in the same locality, would have to be attributed to two different subspecies, the different coloration of the pronotum is here considered insufficient evidence of the presence of two distinct subspecies; hence the synonymy of *D. a. oleae* with *L. artum*.

FAUVEL (1869) described *D. cribricollis* based on an unspecified number of syntypes from "Tanger (OLCESE)". One male and four female syntypes were located in the FAUVEL collection; the male is here designated as the lectotype in order to define the identity and interpretation of the name. Specimens from the surroundings of Tanger have a somewhat more densely punctate forebody and a less transverse ventral process of the aedeagus than is usually the case in *L. artum*, but otherwise no convincing evidence was found suggesting that *L. cribricolle* should represent a distinct species.

The original description of *L. tingitanum* is based on a single holotype from Tanger. It is in every respect similar to the types of *L. cribricolle*, which were collected in the same area. Consequently, the remarks regarding the taxonomic status of *L. cribricolle* also apply to *L. tingitanum*.

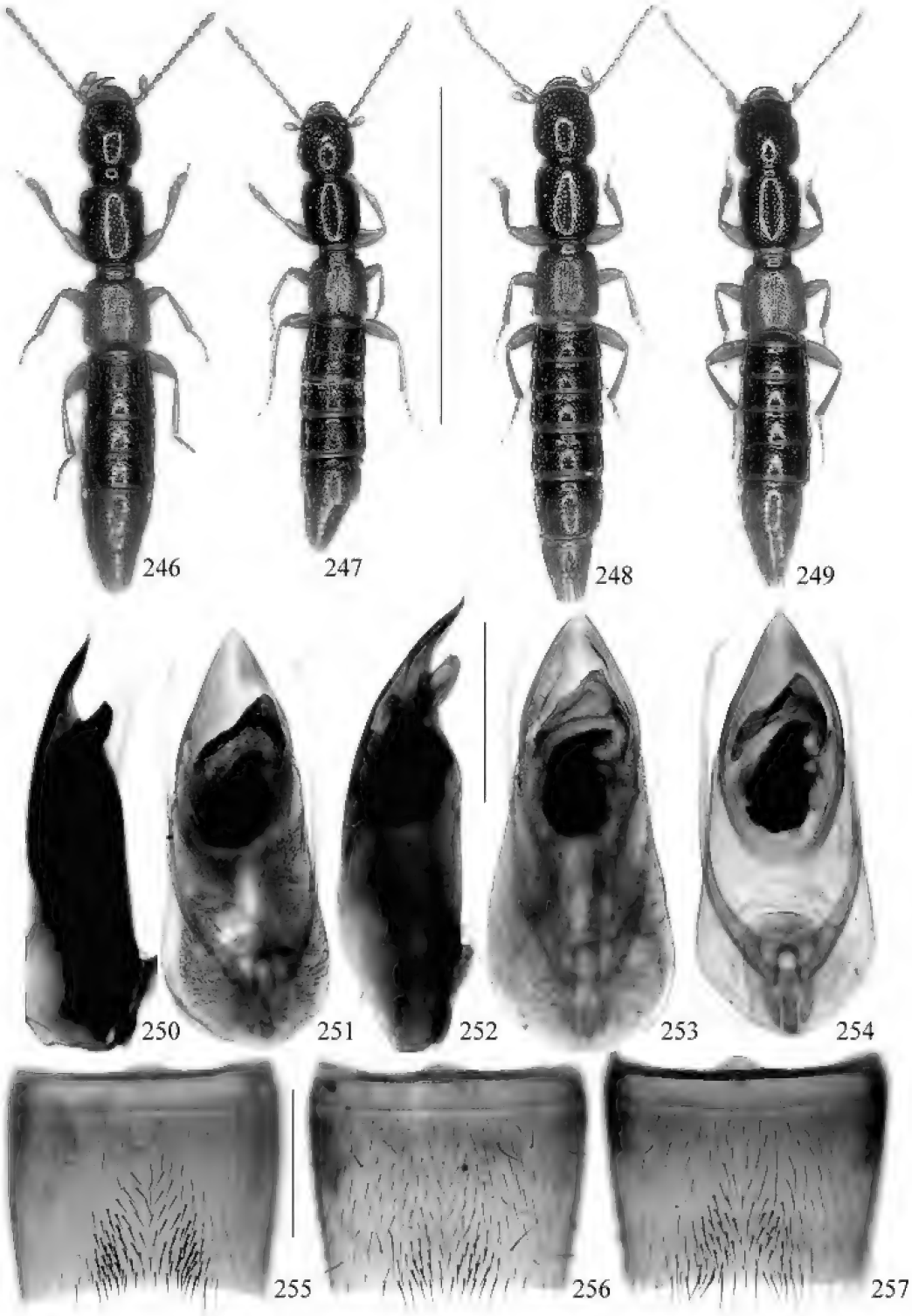
Leptobium algiricum was originally described as a subspecies of *L. artum*, but later regarded as a distinct species (COIFFAIT 1969, 1982). According to JARRIGE (1952), *L. algiricum* is distinguished from *L. artum* by its smaller size and by the different shape of the male sternite VII, but has an aedeagus of similar shape as in *L. artum*. The examined type specimens of *L. algiricum* are indeed somewhat smaller than those of *L. artum*, but size differences between populations of different regions are a common phenomenon in *Leptobium* species; for a more detailed discussion see the remarks on intraspecific variation of *L. gracile* and *L. illyricum*. The shape and chaetotaxy of the male sternite VII of the paratype of *L. a. algiricum* were found to be similar to those of *L. artum*, so that the types of both names are here hypothesised to be conspecific; hence the synonymy indicated above.

Description

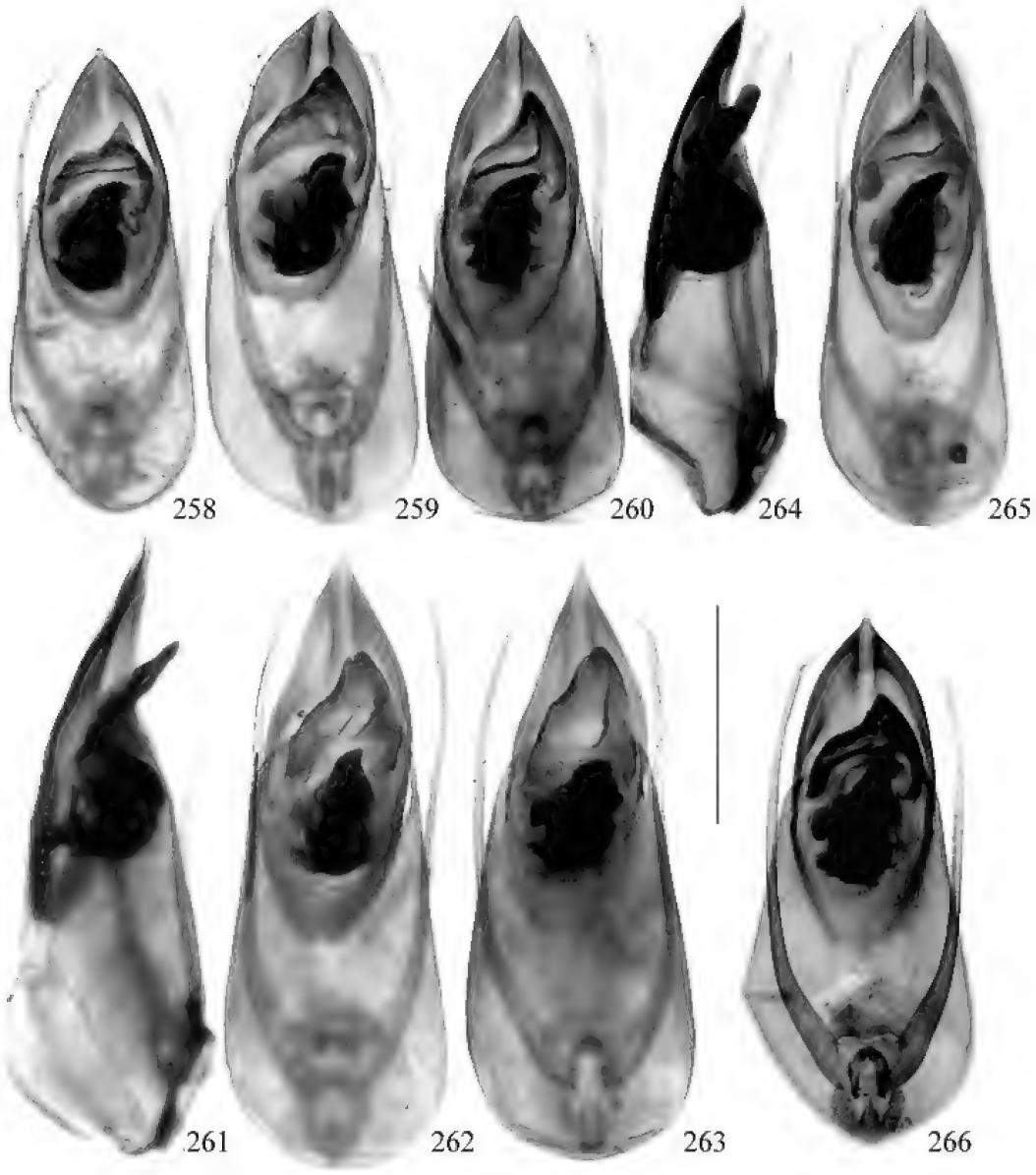
Measurements (in mm) and ratios (range, arithmetic mean; n = 71): HL: 0.82–1.13, 1.01; HW: 0.76–1.07, 0.93; PW: 0.76–1.09, 0.93; PL: 0.91–1.28, 1.09; EL: 0.60–0.87, 0.72; TiL: 0.66–1.01, 0.84; TaL: 0.58–0.91, 0.71; AL: 0.97–1.46, 1.27; TL: 5.2–9.0, 6.7; HL/HW: 1.04–1.15, 1.09; PW/HW: 0.92–1.09, 1.00; PL/PW: 1.13–1.23, 1.17; EL/PL: 0.59–0.64, 0.76; TiL/TaL: 1.06–1.30, 1.17.

Species of small to intermediate size (see measurements) and variable coloration (Figs. 246–249). Head and pronotum usually blackish or – rarely in Libyan populations – rufous; elytra and abdominal apex (segment VII and following segments) rufous; abdominal segments III–VI blackish; anterior margin of segment VII mostly at least weakly infuscate; legs and antennae yellowish brown to rufous.

Head weakly oblong (see ratio HL/HW); eyes of somewhat variable size, usually about half the length of postocular region in dorsal view or slightly larger; punctuation very variable, moderately sparse to very dense and moderately to very coarse; microsculpture absent. Antennae with antennomere III usually (though less than 1.5 ×) longer than antennomere II.



Figs. 246–257. *Leptobium artum* (Karsch). – **246–249.** Habitus (246, 248: Morocco; 247: paratype of *L. algiricum*; 249: Libya). – **250–254.** Aedeagus in lateral and in ventral view (250–251: lectotype of *L. artum*; 252–253: paralectotype; 254: Libya). – **255–257.** Male sternite VII (255: paralectotype of *L. artum*; 256: Libya; 257: Morocco, Sebou). – Scale bars: 5 mm (246–249), 0.5 mm (250–257).

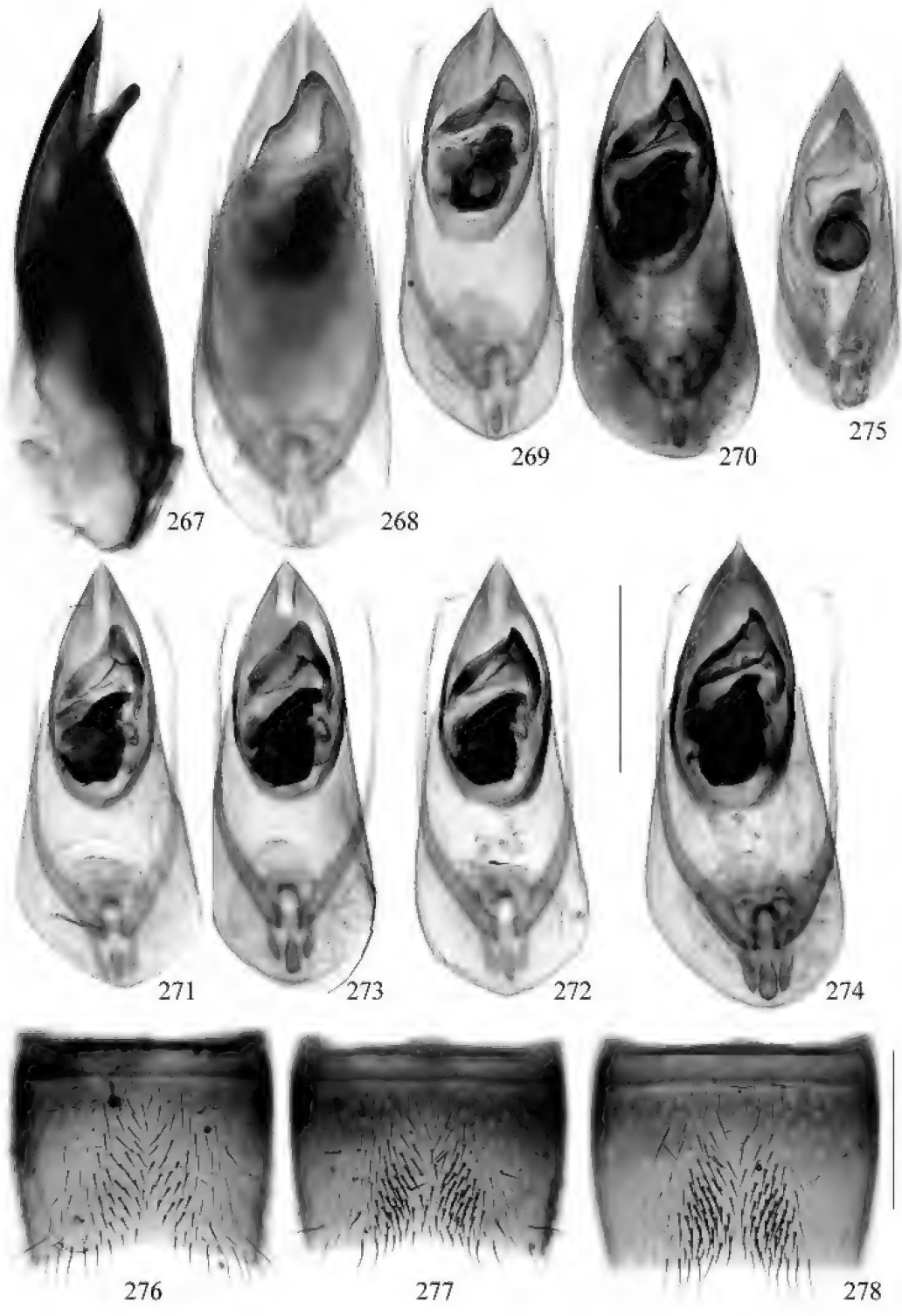


Figs. 258–266. *Leptobium artum* (Karsch) from Morocco. Aedeagus in lateral and in ventral view. – **258.** Oued Sebou. – **259–263.** Tanger. – **264–265.** Larache. – **266.** Rif. – Scale bar: 0.5 mm.

Pronotum distinctly oblong and approximately as wide as head (see ratios PW/HW and PL/PW); lateral margins subparallel or weakly tapering caudad in dorsal view; puncturation similar to that of head, but usually denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation approximately as dense as that of pronotum, but shallower and less well-defined. Hind wings reduced.

Abdomen approximately as wide as elytra or slightly wider; puncturation moderately sparse and fine; microsculpture composed predominantly of distinctly to weakly transverse meshes, on posterior (VII and following) tergites of short trans-



Figs. 267–278. *Leptobium artum* (Karsch). – **267–274**. Aedeagus in lateral and in ventral view (267–268: Morocco, Taforalt; 269: Algeria, St. Charles; 270: paratype of *L. algiricum*; 271–272: Algeria, Constantine; 273: Algeria, Philippeville; 274: Algeria, Oran; 275: Tunisia). – **276–278**. Male sternite VII (276: Tanger; 277: paratype of *L. algiricum*; 278: Philippeville). – Scale bar: 0.5 mm.

verse and isodiametric meshes; posterior margin of tergite VII without, rarely with narrow rudiment of a palisade fringe.

♂: sternite VII with almost straight or weakly concave posterior margin and in posterior median area with two more or less pronounced, rather extensive, but often weakly defined clusters of not very dense dark setae (Figs. 255–257, 276–278); sternite VIII with posterior incision not reaching middle; dorsal plate of aedeagus rather broad, apically more or less abruptly narrowed, and dorsally with pair of weakly pronounced carinae; ventral process asymmetric and of very variable shape (Figs. 250–254, 258–275).

Intraspecific variation

Max/min ratios: HL: 1.38; HW: 1.41; PW: 1.43; PL: 1.41; EL: 1.45; TiL: 1.53; TaL: 1.57; AL: 1.51; HL/HW: 1.11; PW/HW: 1.18; PL/PW: 1.09; EL/PL: 1.25; TiL/TaL: 1.23.

All the size-related parameters are subject to enormous intraspecific variation, especially aedeagus size and the length of the legs. Variation of aedeagus size is mostly, but not exclusively allometric (Fig. 280). The aedeagus of a male from Tunisia was extremely small (Fig. 270). The shape of the ventral process of the aedeagus is remarkably variable, too, not only between, but also within populations. It may be distinctly transverse and strongly asymmetric or almost symmetric and approximately as high as wide. These extremes are linked by various transitional conditions (Figs. 250–254, 258–275). The clusters of modified setae on sternite VII are more weakly defined in males from the western parts of the range than in males from Algeria and Libya. In material from Libya, the head is usually wider than the pronotum, whereas in material from Algeria and Morocco, it is usually as wide as or slightly narrower than the pronotum. The populations from the surroundings of Tanger (northern Morocco) are characterised by a rather dense puncturation of the forebody and a comparatively weakly transverse ventral process of the aedeagus. Finally, specimens with a rufous pronotum are known only from Libya. In one of the specimens seen from the Rif range in Morocco, the pronotum was slightly lighter (reddish brown) than the head.

Body size is highly variable everywhere, but specimens from Morocco tend to be larger than average and beetles from Algeria are often at the lower end of the size range. Body shape, too, is very variable, but a geographic trend is not perceptible (Fig. 279).

Comparative notes

From other North African congeners of similar coloration, *L. artum* is distinguished as follows:

from *L. nigricolle continentale* by smaller eyes, on average lower size, the modified male sternite VII, and a relatively larger aedeagus with a ventral process of different shape and an apically acute dorsal plate;

from the widespread *L. densiventre* especially by the presence of a pair of weakly pronounced dorsal carinae (not one pronounced median carina) on the dorsal plate of the aedeagus, by the somewhat different shape of the dorsal plate, and by the differently shaped ventral process (especially lateral aspect) of the aedeagus;

from *L. subglaciale* from the Haut Atlas by the usually denser and coarser puncturation and by the different morphology of the aedeagus, especially the differently shaped ventral process.

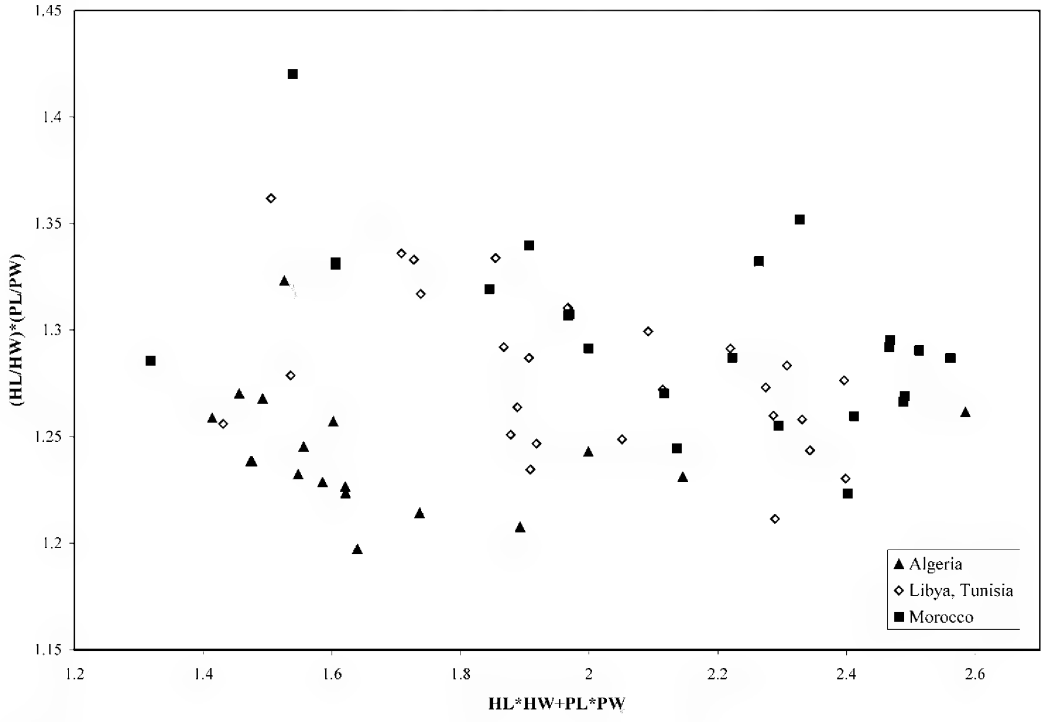


Fig. 279. *Leptobium artum* (Karsch), body shape. "Slenderness" of head and pronotum in relation to body size (see chapter 2).

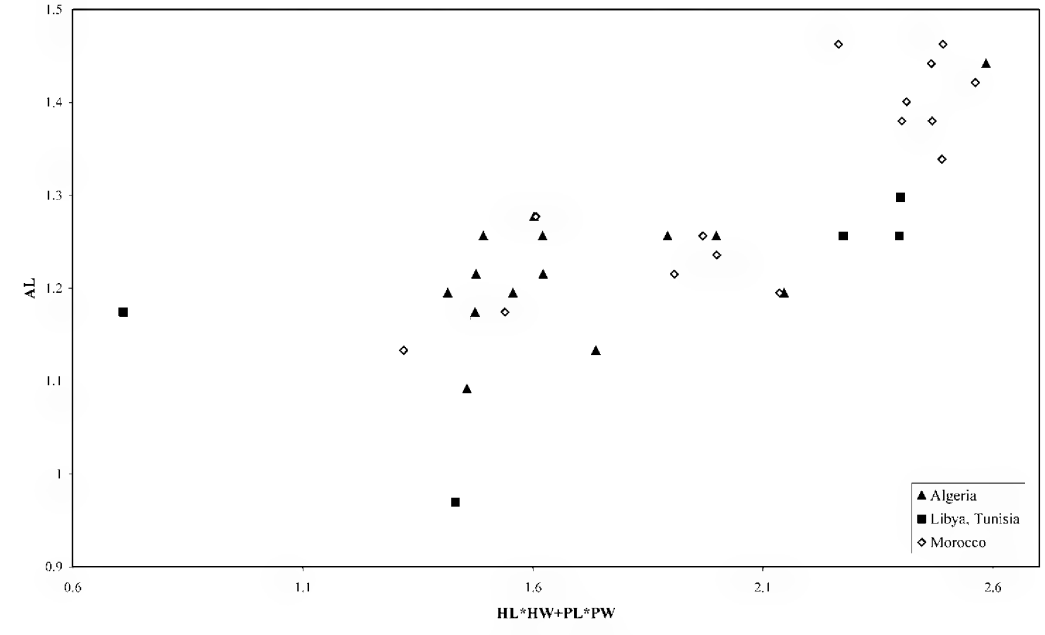


Fig. 280. *Leptobium artum* (Karsch). Aedeagus length (AL) in relation to body size (see chapter 2).

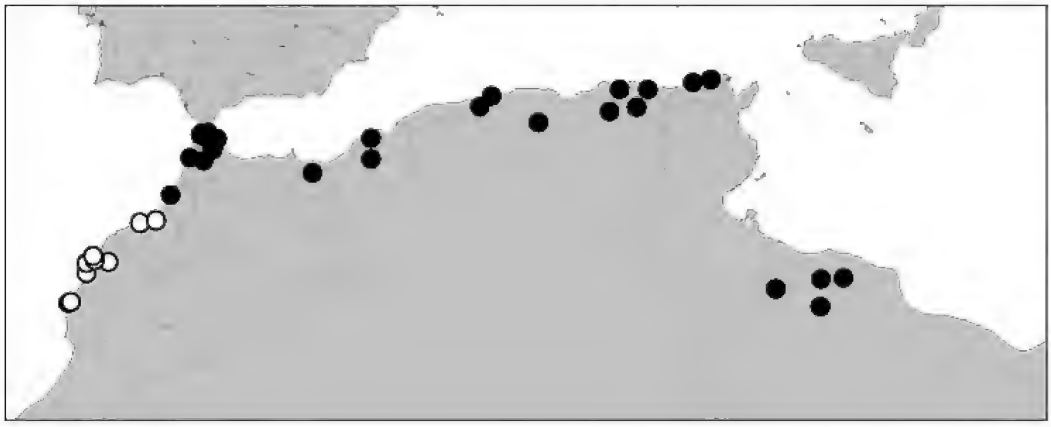


Fig. 281. Distributions of *Leptobium artum* (Karsch) (●) and *L. nigricolle continentale* Jarrige (○) in Northwest Africa, based on revised records.

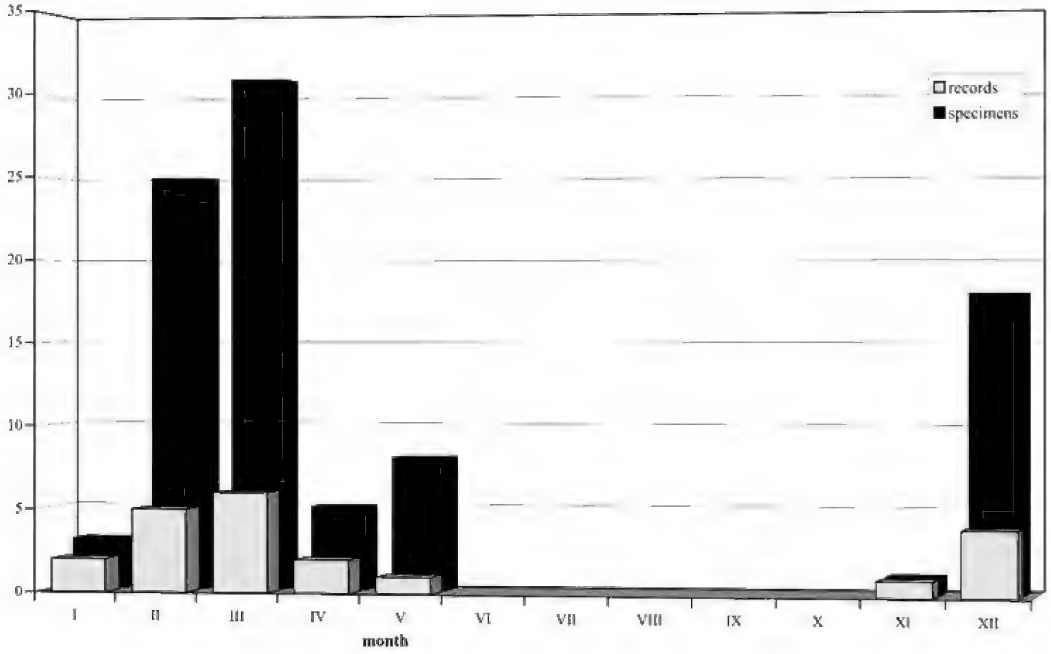


Fig. 282. *Leptobium artum* (Karsch). Seasonal distribution of the examined specimens (black bars) and samples/records (grey bars).

Distribution and bionomics

The known distribution is confined to northwestern Africa and ranges from western Morocco in the west to Libya in the east (Fig. 281). As far as is specified on the few labels that give ecological information, the material examined was found in arable land, fallows, and similar habitats at lower elevations. According to KOCH (1937c), the species was found in great numbers in litter beneath olive trees. The species was recorded during the period from late autumn to spring (November through May), with a maximum in February and March (Fig. 282).

3.29 *Leptobium nigricolle continentale* Jarrige, 1952 (Figs. 281, 283–286)

Leptobium nigricolle continentale; JARRIGE (1952: 121).
Leptobium ovaliceps; COIFFAIT (1969: 860, 869), **n. syn.**

Types examined

L. n. continentale: Paratype ♂: Maroc, ex Musæo H. VAUCHER 1908 / Mogador / Cotype / *Leptobium nigr.* s. sp. *continentale* Jarr. J. JARRIGE det / *Leptobium nigricolle continentale* Jarrige det. V. ASSING (IRSNB).

L. ovaliceps: Holotype ♂: Kenitra, O. Fouarat, ALLUAUD 24 / Holotype / *Leptobium ovaliceps* Coiff., H. COIFFAIT det. 1969 / Muséum Paris / *Leptobium nigricolle continentale* Jarrige det. V. ASSING 2004 (MNHNP).

Additional material examined (total, including types: 26 exs.)

Morocco – 10 exs., Casablanca (HNHM, IRSNB, cAss); 1 ex., Safi (IRSNB); 1 ex., Safi, Cap Cantin, 7.X.1972, leg. OLIVELLA (cBor, cAss); 3 exs., NE Safi, 5 km SE Had Harrara, 29.X.1985, leg. GRIMM & RACHINSKY (SMNS, cAss); 2 exs. [1 ex. teneral], coast N Essaouira, 30.IV.2002, leg. REUTER (cFel, cAss); 1 ex., Ben Slimane ["Boulhaut"], 5.IV.1960 (cAss); 1 ex., Aïn el Rhor [32°38N, 8°59W], 18.VI.1961 (NHMW); 1 ex., Oualidia [32°44N, 9°02W], 22.–23.V.1979, leg. MIGLIACCIO (cZan); 2 exs., locality not specified (IRSNB); 1 ex., Ceuta? ["Marocco (Span.)"] (NHMW); 1 ex., locality illegible (HNHM).

Comments

According to the original description of *L. ovaliceps*, the species is "très remarquable par sa petite tête ovale et par l'élargissement de ses élytres et de son abdomen". This is indeed true of the "holotype", but clearly an impression resulting from the fact that this "holotype" is in fact composed of two specimens, one of them contributing the (smaller) head and pronotum and the other the (larger) elytra and abdomen (including the aedeagus). The posterior parts (elytra, abdomen including aedeagus) are here considered to represent the holotype. Since they doubtlessly refer to *L. nigricolle continentale*, *L. ovaliceps* is here placed in the synonymy of that subspecies.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 24): HL: 0.95–1.24, 1.09; HW: 0.90–1.15, 1.03; PW: 0.93–1.13, 1.03; PL: 1.08–1.34, 1.20; EL: 0.65–0.94, 0.81; TiL: 0.82–1.01, 0.91; TaL: 0.72–0.94, 0.80; AL: 1.01–1.18, 1.08; TL: 5.8–8.6, 7.1; HL/HW: 1.00–1.11, 1.06; PW/HW: 0.96–1.03, 1.00; PL/PW: 1.14–1.19, 1.16; EL/PL: 0.60–0.73, 0.68; TiL/TaL: 1.08–1.21, 1.14.

Of intermediate size (see measurements); habitus as in Fig. 283. Coloration similar to that of *L. illyricum* and *L. densiventre*: head, pronotum, and abdominal segments III–VI blackish; elytra and abdominal apex rufous; legs and antennae yellowish brown to rufous.

Head weakly oblong (see ratio HL/HW); eyes large, postocular region approximately 1.5 times as long as eyes or slightly longer; puncturation moderately coarse and moderately dense, interstices on average about 1–2 times as wide as punctures; microsculpture absent. Antennae with antennomere III not or only indistinctly longer than antennomere II.

Pronotum distinctly oblong, approximately as wide as head or slightly wider (see ratios PW/HW and PL/PW); lateral margins weakly tapering caudad in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.

Elytra moderately short (see ratio EL/PL); puncturation approximately as dense as that of pronotum, but much shallower and less well-defined. Hind wings reduced.

Figs. 283–286. *Leptobium nigricolle continentale* Jarrige. – **283.** Habitus. – **284–285.** Aedeagus in ventral view. – **286.** Male sternite VIII. – Scale bars: 5 mm (283), 0.5 mm (284–286).

Abdomen approximately as wide as elytra; puncturation moderately sparse and fine; microsculpture on anterior tergites composed predominantly of transverse meshes, on posterior tergites also of short transverse or isodiametric meshes; posterior margin of tergite VII without or with indistinct rudiments of a palisade fringe.

♂: sternite VII without distinct clusters of modified setae and with almost straight posterior margin; sternite VIII with conspicuously short posterior incision (Fig. 286); aedeagus small in relation to body size; dorsal plate rather broad and apically convex; ventral process strongly transverse in ventral view (Figs. 284, 285).

Intraspecific variation

Max/min ratios: HL: 1.30; HW: 1.28; PW: 1.22; PL: 1.24; EL: 1.44; TiL: 1.24; TaL: 1.29; AL: 1.16; HL/HW: 1.11; PW/HW: 1.08; PL/PW: 1.09; EL/PL: 1.22; TiL/TaL: 1.12. Head size, pronotum size, and elytral length are highly variable, but in general shape and proportions, and especially in size and shape of the aedeagus, this subspecies is less variable than many other congeners. This observation may be explained by the restricted distribution of the species.

Comparative notes

Leptobium nigricolle continentale is distinguished from other species occurring in Northwest Africa and of similar size and coloration especially by the large eyes, the short posterior incision of the male sternite VIII, the practically unmodified male sternite VII, and by the shape of the aedeagus (apically convex dorsal plate, strongly transverse ventral process). From the nominal subspecies, as well as from *L. nigricolle canariense* (Fauvel), both of which are confined to the Canary islands, it is distinguished by larger eyes, a larger and less oblong head, and by more distinct poste-

rior angles of the head (see ASSING 1999a); the morphology of the aedeagus, however, is practically identical.

Distribution and bionomics

The known distribution of this subspecies is confined to the coastal region of western Morocco (Fig. 281). The material examined was collected at low elevations near the coast (though precise altitudes are not specified on the labels) from April through June and in October. One teneral specimen was found in April.

3.30 *Leptobium gridellii* (Koch, 1941) (Figs. 287–291, 301)

Dolicaon gridellii; KOCH (1941: 59f.).
Dolicaon jarrigei; KOCH (1941: 60), **n. syn.**
Leptobium melillensis [sic]; COIFFAIT (1969: 856, 870ff.), **n. syn.**

Types examined

D. gridellii: Lectotype ♂ [teneral], here designated: Alhucemas, Mar. 11.5.33 / Paratypus [sic] / Lectotypus ♂ *Dolicaon gridellii* Koch desig. V. ASSING 2004 / *Leptobium gridellii* (Koch) det. V. ASSING 2004 (NHMB). – Paralectotype ♀: same data as lectotype, but "Type / *Dolicaon Gridellii* Koch det. C. KOCH" (NHMB).

D. jarrigei: Holotype ♀: Alhucemas, Mar. 11.5.33 / Type / *Dolicaon Jarrigei* Koch det. C. KOCH / *Leptobium gridellii* (Koch) det. V. ASSING 2004 (NHMB).

L. melillense: Holotype ♂: Maroc, Melilla / Holotype / *Leptobium melillensis* Coiff., H. COIFFAIT det. 1968 / Muséum Paris / *Leptobium gridellii* (Koch) det. V. ASSING 2004 (MNHNP). – Paratype ♀: Taguil, Mamin (Burugu), Melilla – Marruecos, Pardo Alcaide / Allotype (MNHNP).

Additional material examined (total, including types: 7 exs.)

Morocco – 2 exs., Melilla (MCSNT).

Comments

The male syntype of *L. gridellii* is here designated as the lectotype. The type specimens of *D. gridellii* and *D. jarrigei* were evidently collected together (same date and locality). They are doubtlessly conspecific, the only appreciable difference being the lighter coloration of the completely teneral types of *D. gridellii*; hence the synonymy indicated above.

The holotype of *L. melillense* is somewhat larger than the other specimens seen, but otherwise no convincing differences were found, suggesting that it should represent a distinct species. The male sexual characters are practically identical with those of *L. gridellii*; also, the types of both species were collected in the same area, so that there is no doubt that they are conspecific.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 7): HL: 1.22–1.48, 1.33; HW: 1.13–1.44, 1.24; PW: 1.11–1.38, 1.22; PL: 1.26–1.55, 1.37; EL: 0.91–1.05, 0.97; TiL: 0.99–1.17, 1.06; TaL: 0.82–0.91, 0.86; AL: 1.59–1.65, 1.62; TL: 7.2–8.9, 8.3; HL/HW: 1.03–1.12, 1.07; PW/HW: 0.96–1.00, 0.98; PL/PW: 1.12–1.15, 1.13; EL/PL: 0.68–0.75, 0.71; TiL/TaL: 1.17–1.30, 1.22.

Relatively large species (see measurements); habitus as in Fig. 287. Coloration similar to that of *L. densiventre*: head, pronotum, and abdominal segments III–VI blackish; elytra and abdominal apex rufous; abdominal segment VII anteriorly indistinctly infuscate; legs and antennae yellowish brown to rufous.

Head moderately oblong (see ratio HL/HW); eyes moderately large, approximately half the length of postocular region in dorsal view or slightly larger; puncturation moderately coarse and moderately dense, interstices on average about 1.5–2.5 times as wide as punctures; microsculpture absent. Antennae with antennomere III indistinctly longer than antennomere II.

Pronotum moderately oblong, approximately as wide as head or slightly narrower (see ratios PW/HW and PL/PW); lateral margins weakly tapering posteriad in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.

Elytra moderately short (see ratio EL/PL); puncturation rather shallow and moderately sparse. Hind wings reduced.

Abdomen as wide as or slightly wider than elytra; puncturation rather fine and sparse; microsculpture on anterior tergites composed predominantly of transverse striae and long transverse meshes, on tergite VII of transverse and isodiametric meshes; posterior margin of tergite VII with indistinct rudiments of a palisade fringe.

♂: sternite VII in posterior median area with two extensive, but weakly defined clusters of modified dark setae, posterior margin weakly concave (Fig. 290); sternite VIII with posterior incision almost reaching middle (Fig. 291); aedeagus of similar morphology as in *L. nigricolle*, dorsal plate broad, apically acute, and symmetrical; ventral process distinctly transverse (Figs. 288, 289).

Intraspecific variation

Max/min ratios: HL: 1.22; HW: 1.27; PW: 1.24; PL: 1.23; EL: 1.16; TiL: 1.19; TaL: 1.10; AL: 1.04; HL/HW: 1.09; PW/HW: 1.04; PL/PW: 1.03; EL/PL: 1.11; TiL/TaL: 1.11. Head and pronotum size are rather variable; in other respects, intraspecific variation is moderate.

Comparative notes

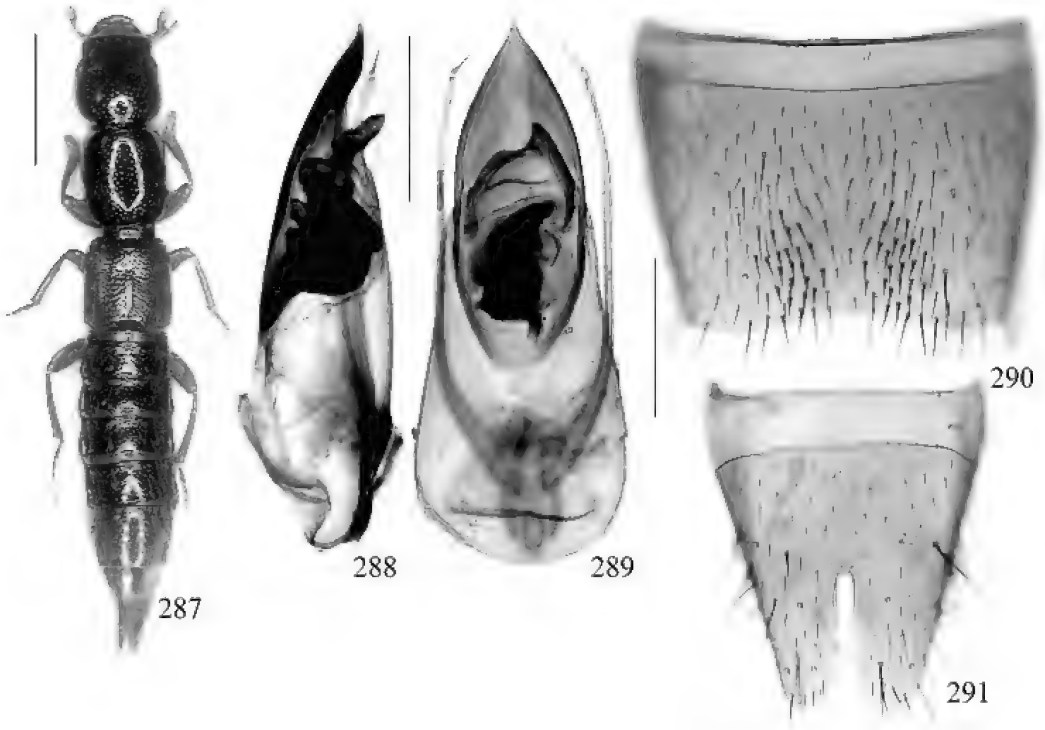
From other North African species of similar coloration and size (*L. densiventre*, *L. artum*, *L. fagniezi*) *L. gridellii* is distinguished especially by the morphology of the aedeagus, from *L. densiventre* and *L. artum* also by larger size and sparser puncturation, and from *L. fagniezi* by larger eyes, less coarsely punctate elytra, and a more weakly modified male sternite VII. In general appearance, *L. gridellii* also somewhat resembles *L. doderoi* from southern Spain, which, however, has much longer legs and antennae.

Distribution and bionomics

The species is known only from northeastern Morocco (Fig. 301). The types of *L. gridellii*, which were collected in May, are teneral. Further bionomic data are not available.

3.31 *Leptobium subglaciale* (Koch, 1937) (Figs. 292–301)

Dolicaon subglacialis; Koch (1937b: 29f.).
Leptobium subglacialis demnatensis [sic]; Coiffait (1969: 878), **n. syn.**
Leptobium mineti; Coiffait (1980: 253), **n. syn.**
Leptobium moraguesi; Coiffait (1984: 314f.), **n. syn.**



Figs. 287–291. *Leptobium gridellii* (Koch). – **287**. Habitus. – **288–289.** Aedeagus in lateral and in ventral view. – **290.** Male sternite VII (lectotype). – **291**. Male sternite VIII (lectotype). – Scale bars: 2 mm (287), 0.5 mm (288–291).

Types examined

D. subglacialis: Lectotype ♂, here designated: Around. Alto Atl. 23.3.35 R. e C. Koch / Cotypus / Lectotypus ♂ *Dolicaon subglacialis* Koch desig. V. Assing 2004 / *Leptobium subglaciale* det. V. Assing 2004 (MCSNM). – Paralectotypes: 1 ♂, 8 ♀♀: same data as lectotype (MCSNM, NHMB, cAss).

L. s. demnatense: Holotype ♂: Maroc, 26.2.66, Demnate, H. Coiffait / Holotype / *Leptobium subglacialis* ssp. *demnatensis*, H. Coiffait det. 1969 / Muséum Paris / *Leptobium subglaciale* (Koch) det. V. Assing 2004 (MNHNP). – Paratype ♂: same data as holotype (MNHNP).

L. mineti: Holotype ♂: S. Maroc, XII.78, Rhmate, Minet / Holotype / *Leptobium mineti*, H. Coiffait 1980 / Muséum Paris / *Leptobium subglaciale* (Koch) det. V. Assing 2004 (MNHNP). – Paratypes: 3 ♀♀: same data as holotype (MNHNP); 1 ♂, 2 ♀♀: S. Maroc, Dar Choulter, 12.78, Minet (MNHNP); 3 ♂♂: same data, but 24.XII.78 (MNHNP).

L. moraguesi: Holotype ♂: 2 km d'Oukaimeden, Gd. Atlas Central, 2450 m, Maroc, 3.V.83, G. Morages / Holotype / *Leptobium moraguesi* H. Coiffait det. 1984 / *Leptobium subglaciale* (Koch) det. V. Assing (cAss) (MNHNP).

Additional material examined (total, including types: 36 exs.)

Morocco – 2 exs., Haut Atlas, Asni, 29.III.1999, leg. Lackner (cHla, cAss); 3 exs., Asni, 21.III.1982, leg. Fülscher & Meybohm (MHNG, cWun); 1 ex., 4 km E Asni, 1400 m, 28.X.1990, leg. Arndt (DEI); 3 exs., Haut Atlas, NE Tizi-n-Test, 30°52N, 8°22W, 2070 m, N-slope with *Quercus ilex*, 26.XII.2002, leg. Wunderle (cWun, cAss); 1 ex., Tizi-n-Test, 2100 m, 12.XII.1993, leg. Wunderle (cAss); 3 exs., Tizi-n-Test, 2100 m, 20.III.1982, leg. Fülscher & Meybohm (cAss); 1 ex., Toubkal, 6.V.1962 (NHMW); 1 ex., Oukaimeden, 2650 m, 19.IV.1995, leg. Snižek (cSch); 2 exs., Djebel Siroua [30°43N, 7°37W], 3304 m, 29.III.1988, leg. Tronquet (cTro); 1 ex., steppe between Amizmiz and Marrakech, leg. Franz (cAss).

Comments

The original description of *Dolicaon subglacialis* is based on an unspecified number of syntypes from "Around" in the Haut Atlas, ten of which were found in the collections of the MCSNM and the NHMB. One of the males is here designated as the lectotype.

According to COIFFAIT (1969), the subspecies *L. subglaciale demnatense* (type locality: Demnate, Haut Atlas) is distinguished from the nominal subspecies by larger size, shorter elytra, and by a larger aedeagus with a differently shaped ventral process. However, it can be inferred from the original description that he had apparently not seen material of *L. subglaciale* from the type locality. Specimens from the type locality of *L. subglaciale* are on average even larger than the types of *L. s. demnatense* (Fig. 300) and their aedeagi are more similar to that illustrated for *L. s. demnatense* than to that illustrated for the nominal subspecies by COIFFAIT (1969: 859). In the material seen from various localities in the Haut Atlas, all the characters referred to by COIFFAIT (1969) are subject to pronounced variation, not only between, but also within populations. Since the presence of a distinct subspecies in the same mountain range is not plausible from a biogeographic point of view either, *L. s. demnatense* is here synonymised with *L. subglaciale*.

The original description of *L. mineti* is based on a holotype from Rhmate and nine paratypes "même provenance, ..., ma collection". The COIFFAIT collection in fact contains nine paratypes, but six of them are from Dar Choulter, not from Rhmate, suggesting that COIFFAIT apparently did not bother to examine the labels of all the type specimens. The types of *L. mineti* are rather small and have a slender forebody (Fig. 300), but they are within the range of intraspecific variation of *L. subglaciale*, regarding both external and the male sexual characters, so that *L. mineti* is here considered a junior synonym.

An examination of the holotype of *L. moraguesi* revealed no differences whatsoever suggesting that it should be distinct from *L. subglaciale*, which is not even mentioned by COIFFAIT (1984).

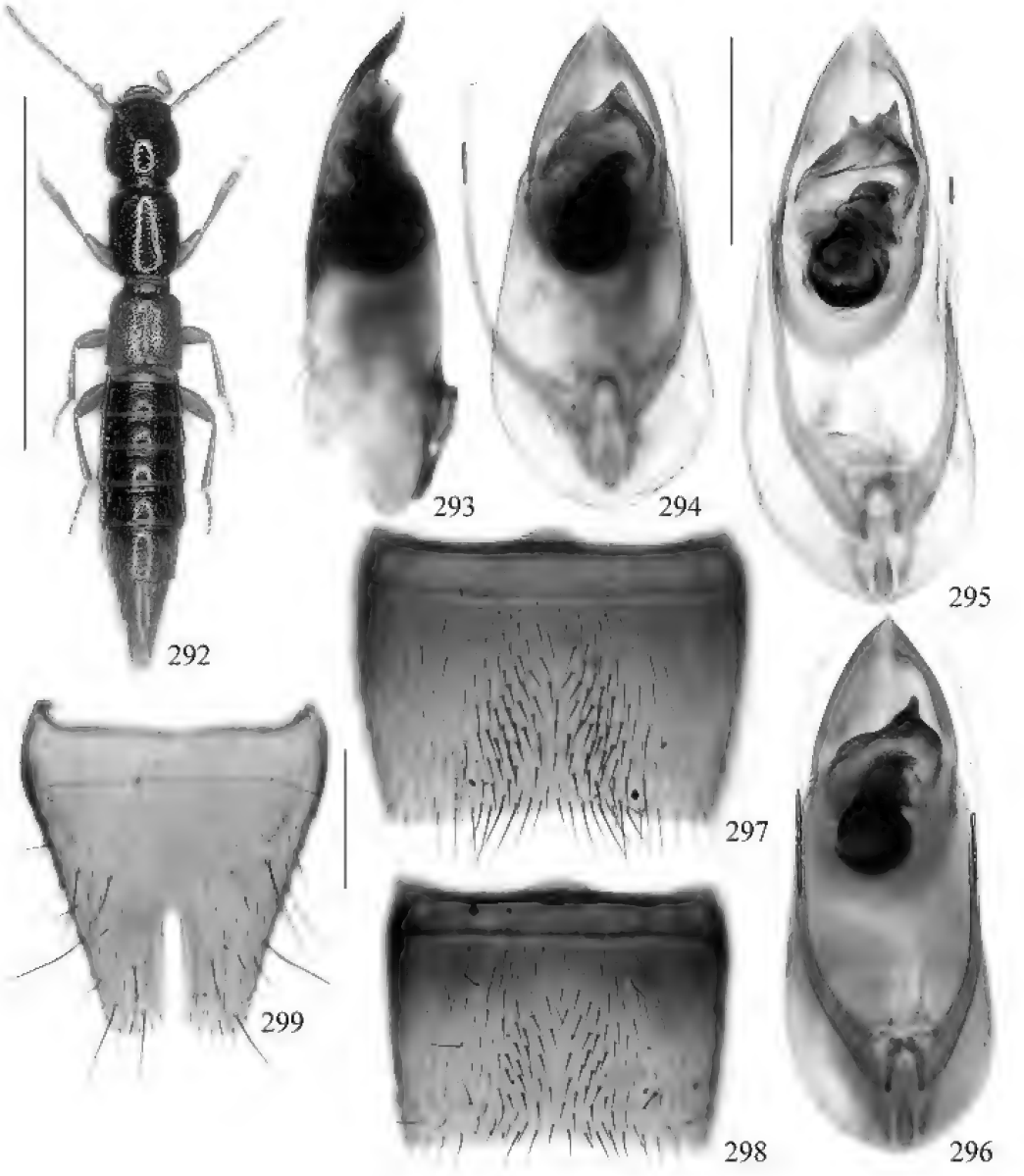
Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 28): HL: 0.91–1.24, 1.02; HW: 0.82–1.13, 0.94; PW: 0.82–1.10, 0.93; PL: 0.97–1.32, 1.09; EL: 0.64–0.89, 0.72; TiL: 0.70–1.03, 0.84; TaL: 0.62–0.87, 0.72; AL: 1.09–1.36, 1.22; TL: 5.8–8.3, 6.9; HL/HW: 1.05–1.13, 1.09; PW/HW: 0.94–1.05, 0.99; PL/PW: 1.14–1.21, 1.17; EL/PL: 0.71–0.65, 0.66; TiL/TaL: 1.08–1.27, 1.17.

Of moderate size (see measurements); habitus as in Fig. 292. Coloration: head, pronotum, and abdominal segments III–VI blackish; elytra and abdominal apex rufous; abdominal segment VII bicoloured with anterior $^1/_2$–$^1/_4$ infuscate; legs and antennae yellowish brown to rufous.

Head weakly oblong (see ratio HL/HW); eyes small, $^1/_3$–$^2/_5$ the length of postocular region in dorsal view; puncturation variable, moderately fine to coarse and sparse to moderately dense; microsculpture absent. Antennae with antennomere III as long as or slightly longer than antennomere II.

Pronotum moderately oblong, approximately as wide as head (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.



Figs. 292–299. *Leptobium subglaciale* (Koch). – **292**. Habitus (lectotype). – **293–296**. Aedeagus in lateral and in ventral view (293–294: Asni; 295: paralectotype; 296: lectotype). – **297–298**. Male sternite VII (297: lectotype). – **299**. Male sternite VIII (lectotype). – Scale bars: 5 mm (292), 0.5 mm (293–299).

Elytra short (see ratio EL/PL); puncturation usually fine, shallow, and sparse, but somewhat variable. Hind wings reduced.

Abdomen as wide as or slightly wider than elytra; puncturation moderately dense and very fine; microsculpture composed predominantly of transverse striae and long transverse meshes; posterior margin of tergite VII without or with indistinct rudiments of a palisade fringe.

♂: sternite VII in posterior median area depressed and with weakly delimited extensive cluster of modified dark setae, posterior margin weakly concave (Figs. 297,

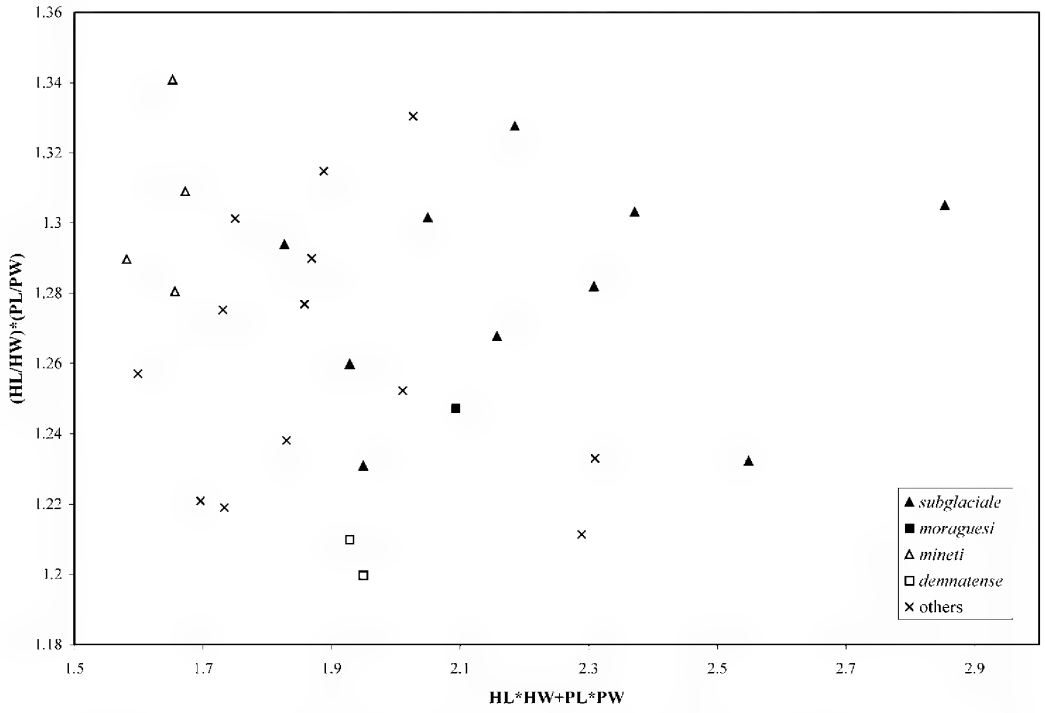


Fig. 300. *Leptobium subglaciale* (Koch), body shape. "Slenderness" of head and pronotum in relation to body size of types (*L. subglaciale*, *L. moraguesi*, *L. mineti*, *L. subglaciale demnatense*) and of non-type material ("others") (see chapter 2).

298); sternite VIII with posterior incision almost reaching middle (Fig. 299); aedeagus of similar morphology as in *L. nigricolle*, dorsal plate broad, apically acute, and with pair of weakly pronounced dorsal carinae; ventral process of variable shape, distinctly asymmetric and transverse (Figs. 293–296).

Intraspecific variation

Max/min ratios: HL: 1.36; HW: 1.38; PW: 1.34; PL: 1.36; EL: 1.39; TiL: 1.47; TaL: 1.40; AL: 1.25; HL/HW: 1.07; PW/HW: 1.11; PL/PW: 1.06; EL/PL: 1.23; TiL/TaL: 1.18.

Like most other species of the genus, many external and sexual characters, especially body size and the shape of the ventral process, are subject to pronounced intraspecific variation, even within populations. Body size is on average greater in the type series of *L. subglaciale* than in material seen from other localities, but there is considerable overlap (Fig. 300).

Comparative notes

From Moroccan congeners of similar size and coloration, *L. subglaciale* is distinguished as follows:

from *L. artum* by the smaller eyes, the relatively shorter antennomere III, as well as by the apically less slender and dorsal plate of the aedeagus and by the different shape of the ventral process;

from *L. nigricolle continentale* by the much smaller eyes, the apically distinctly pointed dorsal plate of the aedeagus, and by the less transverse ventral process.

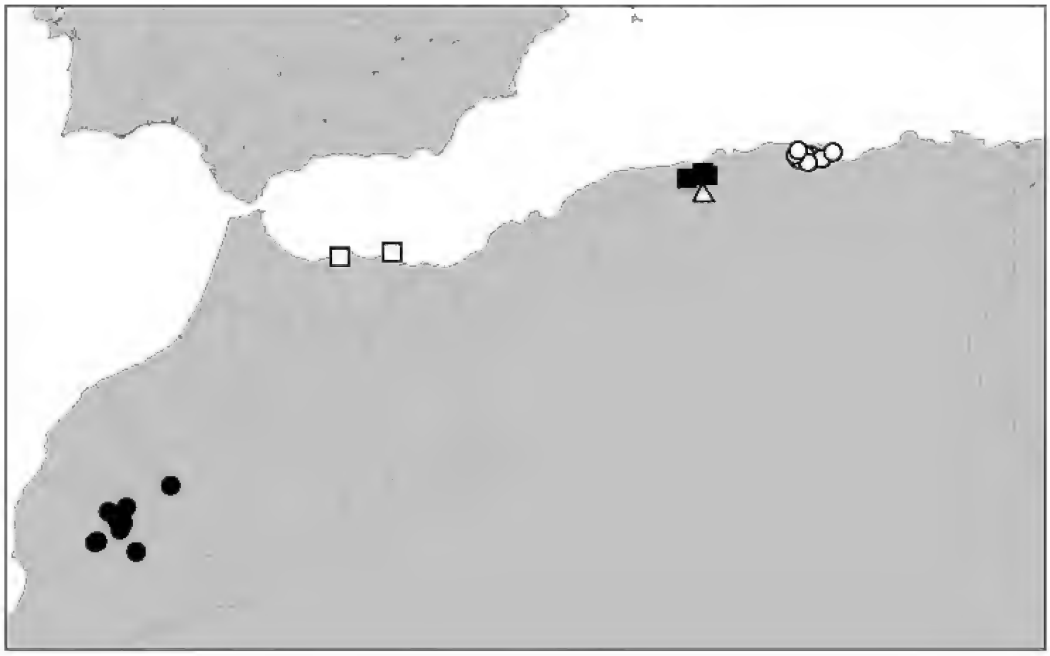


Fig. 301. Distributions of *Leptobium gridellii* (Koch) (□) *L. subglaciale* (Koch) (●), *L. pseudosiculum* Jarrige (△), *L. fagniezi* Jarrige (○), and *L. mouzaiense* Coiffait (■) in Morocco and Algeria, based on revised records.

Distribution and bionomics

The species is apparently endemic to the Haut Atlas, Morocco (Fig. 301), where it has been recorded from a wide range of altitudes, from less than 1000 m up to 3300 m. The examined specimens were collected in spring (March through May), October, and December.

3.32 *Leptobium pseudosiculum* Jarrige, 1952 (Figs. 301–306)

Leptobium pseudosiculum; JARRIGE (1952: 121 f.).

Types examined

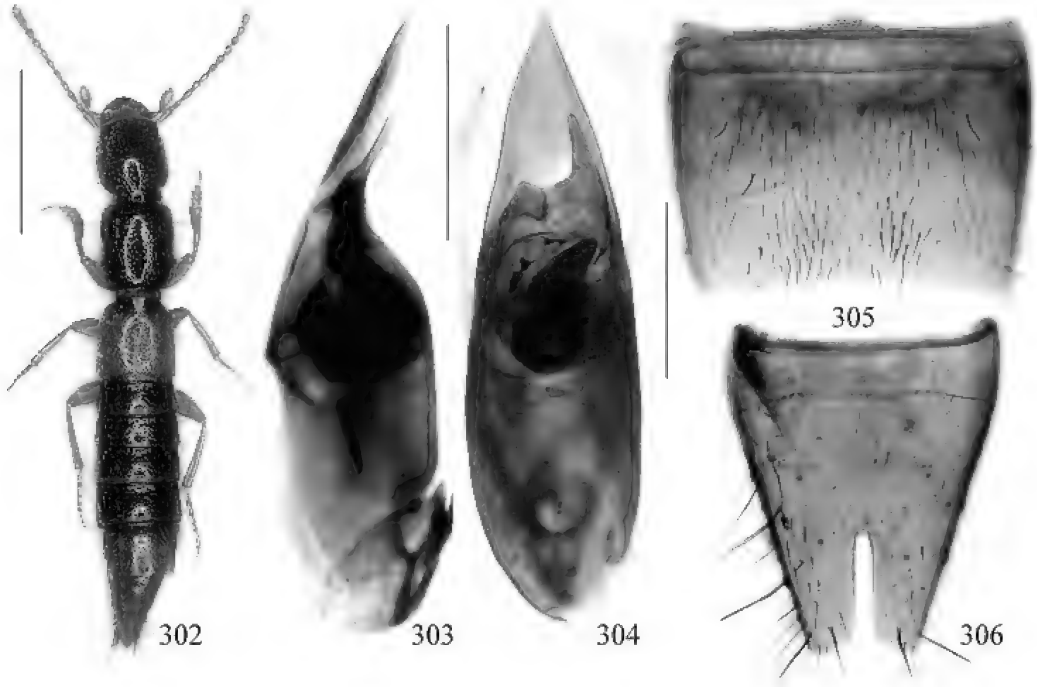
Holotype ♂: Medeah Alg. (DE V.) / Type / *pseudosiculus* Jarr. / Muséum Paris / *Leptobium pseudosiculum* det. V. ASSING 2004 (MNHNP). – Paratypes: 6 ♂♂, 5 ♀♀: same data as holotype, but "Paratype *Leptobium pseudosiculum* Jarrige rev. V. ASSING 2004" (MNHNP); 1 ♂: same data as holotype, but "Cotype / *Leptobium pseudosiculum* Jarr. J. JARRIGE det." (IRSNB).

Additional material examined (total, including types: 14 exs.)

Algeria – 1 ex., Médéa (MNHNP).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 12): HL: 0.93–1.03, 0.99; HW: 0.87–0.95, 0.90; PW: 0.89–1.03, 0.94; PL: 1.07–1.22, 1.12; EL: 0.62–0.74, 0.67; TiL: 0.84–0.99, 0.89; TaL: 0.68–0.82, 0.76; AL: 1.47–1.48, 1.01; TL: 5.9–7.0, 6.3; HL/HW: 1.07–1.14, 1.10; PW/HW: 1.00–1.09, 1.04; PL/PW: 1.18–1.21, 1.20; EL/PL: 0.58–0.64, 0.60; TiL/TaL: 1.11–1.24, 1.17.



Figs. 302–306. *Leptobium pseudosiculum* Jarrige (paratype). – **302.** Habitus. – **303–304.** Aedeagus in lateral and in ventral view. – **305.** Male sternite VII. – **306.** Male sternite VIII. – Scale bars: 2 mm (302), 0.5 mm (303–306).

Of relatively small size (see measurements); habitus as in Fig. 302. Coloration similar to that of *L. illyricum* and *L. densiventre*: head, pronotum, and abdominal segments III–VI blackish; elytra and abdominal apex rufous; abdominal segment VII indistinctly infuscate anteriorly; legs and antennae yellowish brown to rufous.

Head oblong (see ratio HL/HW); eyes small, less than half the length of postocular region in dorsal view; puncturation rather coarse and moderately dense, irregularly spaced, in median region very sparse; microsculpture absent. Antennae with antennomere III almost 1.5 times as long as antennomere II.

Pronotum distinctly oblong, slightly wider than head (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation approximately as dense as that of pronotum, but much shallower and less well-defined. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation rather dense and shallow; microsculpture on anterior tergites composed predominantly of short transverse meshes, on posterior tergites of isodiametric meshes; posterior margin of tergite VII without palisade fringe.

♂: sternite VII in posterior area with pair of extensive, but rather indistinct clusters of weakly modified setae and with weakly concave posterior margin (Fig. 305); sternite VIII with posterior incision little more than $^1/_3$ the length of the sternite (Fig. 306); aedeagus long and slender; dorsal plate long, slender, apically acute, and without carinae; ventral process of distinctive shape, distinctly asymmetric, and on the right (ventral view) strongly elongated (Figs. 303, 304); parameres with numerous (approximately 15 or more) subapical setae.

Intraspecific variation

Since the species is known only from one locality, the observed variation of external and sexual characters is low.

Comparative notes

The species is readily distinguished from its congeners by the distinctive morphology of the aedeagus.

Distribution and bionomics

The known distribution of *L. pseudosiculum* is confined to one locality in northern Algeria (Fig. 301); COIFFAIT (1982) indicates the species also from the Mouzaïa range. Further bionomic data are not available.

3.33 *Leptobium fagniezi* Jarrige, 1952 (Figs. 301, 307–317)

Leptobium fagniezi; JARRIGE (1952: 122).

Types examined

Holotype ♂: Yakouren, Kabylie, VI.01 / Type / *Fagniezi* Jarr. / Muséum Paris / *Leptobium fagniezi* det. V. ASSING 2004 (MNHNP). – Paratype ♀: same data as holotype (MNHNP).

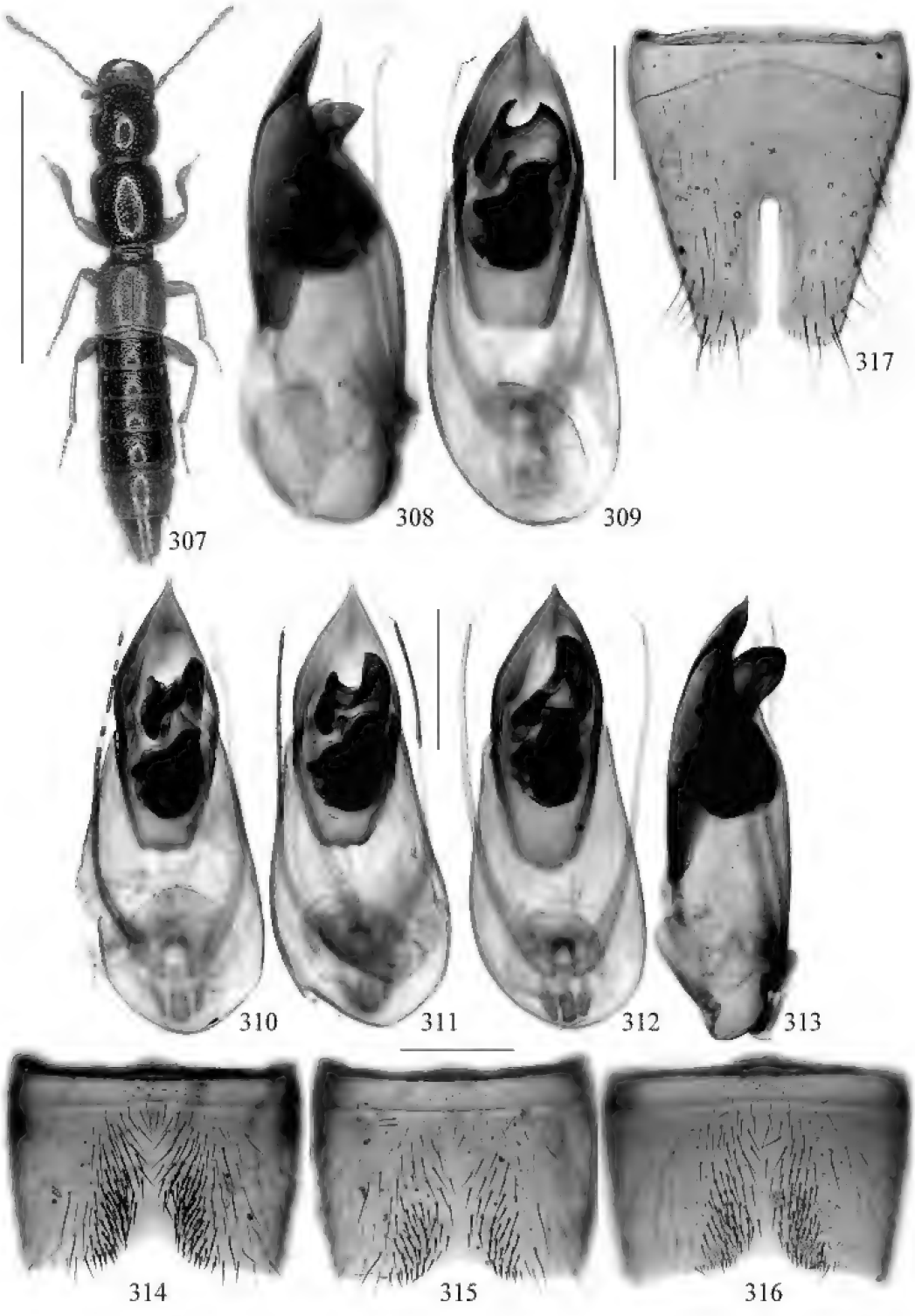
Additional material examined (total, including types: 83 exs.)

Algeria – 2 exs., Grande Kabylie, Yakouren, Tala Tekzirine, 860 m, V.1953, leg. FAGEL (IRSNB); 13 exs., Yakouren, Beni-Ghobri forest, 750–800 m, V.1953, leg. FAGEL (IRSNB, cAss); 7 exs., Yakouren, V.1983, leg. FRANZ (NHMW, cAss); 4 exs., Grande Kabylie, Yakouren, 730 m, 12.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (MHNG, cAss); 1 ex., Akfadou, 1000 m, 16.VI.1982, leg. SAMA (cSch); 2 exs., Forêt d'Akfadou, 26 km E Yakouren, 1200 m, 16.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (MHNG, cAss); 20 exs., Forêt d'Akfadou, 22 km E Yakouren, 1050 m, 16.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (MHNG, cAss); 1 ex., Forêt d'Akfadou, El Kseur, 22.–23.V.1981 (cZan); 1 ex., Forêt d'Akfadou, 1000 m, 4./7.VI.1980, leg. SAMA & MAGNANI (cZan); 1 ex., 9 km E Yakouren, 930 m, 13.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (cAss); 3 exs., Forêt d'Akfadou, 9 km W Adekar, 1300 m, 17.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (MHNG); 1 ex., Yakouren, VI.1902, leg. CHOBAUT (MNHNP); 1 ex., Adekar, 900 m, 15.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (cAss); 3 exs., Adekar (MHNG); 3 exs., Azazga, Yakouren, 600 m, 14.V.1988, leg. BESUCHET, LÖBL, BURCKHARDT (MHNG, cAss); 4 exs., Yakouren, leg. PUEL (NHMB, cAss); 6 exs., Yakouren (MHNG); 1 ex., Kabylie, E Tizi Ouzou, Kebouche, 1100 m, 8.III.1991, leg. HEINZ (cKor); 1 ex. [teneral], Forêt d'Akfadou, El Kseur, 1320 m, 29.X.1984 (cBor); 1 ex., Tifrit-n-Aït el Hadj, mixed oak forest, 11.V.1983, leg. OMODEO (cAss); 1 ex., "Kabylia", leg. ANCEY (DEI); 3 exs., Bejaïa (DEI, cAss); 1 ex., locality not specified (ZIN).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 39): HL: 1.15–1.44, 1.30; HW: 1.03–1.34, 1.21; PW: 1.07–1.38, 1.24; PL: 1.24–1.61, 1.46; EL: 0.84–1.09, 0.97; TiL: 0.95–1.26, 1.10; TaL: 0.76–1.03, 0.90; AL: 1.59–1.90, 1.72; TL: 7.2–9.8, 8.4; HL/HW: 1.02–1.13, 1.08; PW/HW: 0.98–1.07, 1.03; PL/PW: 1.14–1.23, 1.18; EL/PL: 0.63–0.72, 0.66; TiL/TaL: 1.16–1.34, 1.23.

Large species (see measurements); habitus as in Fig. 307. Of similar size, coloration, and overall appearance as *L. illyricum* (see measurements). Coloration similar to that of *L. illyricum* and *L. densiventre*: head, pronotum, and abdominal segments III–VI blackish; elytra and abdominal apex rufous; abdominal segment VII indistinctly infuscate anteriorly; legs and antennae yellowish brown to rufous.



Figs. 307–317. *Leptobium fagniezi* Jarrige from Yakouren (307–310, 314–315), Kebouche (311), and Bejaïa (312–313, 316–317). – **307**. Habitus. – **308–313**. Aedeagus in lateral and in ventral view. – **314–316**. Male sternite VII. – **317**. Male sternite VIII. – Scale bars: 5 mm (307), 0.5 mm (308–317).

Head weakly oblong (see ratio HL/HW); eyes small, about half the length of postocular region in dorsal view; puncturation rather coarse and moderately dense, irregularly spaced, in median region very sparse, interstices in lateral areas on average about twice as wide as punctures; microsculpture absent. Antennae with antennomere III about as long as antennomere II or slightly longer.

Pronotum distinctly oblong, slightly wider than head (see ratios PW/HW and PL/PW); lateral margins weakly converging in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation approximately as dense as that of pronotum, but much shallower and less well-defined. Hind wings reduced.

Abdomen as wide as or slightly wider than elytra; puncturation moderately dense and rather shallow; microsculpture predominantly composed of transverse striae; posterior margin of tergite VII with very narrow rudiment of palisade fringe.

♂: sternite VII in posterior area with distinct oblong impression, on either side of this impression with two conspicuous and extensive clusters of distinctly modified setae, posterior margin distinctly concave in the middle (Figs. 314–316); sternite VIII with posterior incision almost reaching middle of sternite (Fig. 317); aedeagus large and very distinctive; dorsal plate broad, apically acute, and dorsally with pronounced median carina; ventral process in the middle deeply excavate (Figs. 308–313); parameres with numerous (almost 20) subapical setae.

Intraspecific variation

Max/min ratios: HL: 1.25; HW: 1.30; PW: 1.29; PL: 1.30; EL: 1.29; TiL: 1.33; TaL: 1.35; AL: 1.19; HL/HW: 1.12; PW/HW: 1.09; PL/PW: 1.08; EL/PL: 1.14; TiL/TaL: 1.16.

Not only the size-related parameters, but also the shape of the ventral process was observed to be subject to remarkable intraspecific variation. Apart from the normal shape (Fig. 308) present in specimens from Yakouren, two other morphs were seen from Yakouren, Kebouche (Figs. 310, 311) and from Bejaïa (Figs. 312, 313). Despite the distinct differences between these morphs, they are here hypothesised to be conspecific, especially because no other distinguishing characters were found, because a similarly pronounced polymorphism of the aedeagus is also known from other *Leptobium* species, because transitional conditions may occur, and finally because zoogeographic evidence would not support the hypothesis that they represent distinct species. All these morphs occur in the same region at lower altitudes, and appreciable barriers separating the ranges are absent.

There is apparently a sexual size dimorphism; males are on average slightly larger than females (Fig. 318). Arithmetic means of the measurements (males, females): HL: 1.35, 1.24; HW: 1.25, 1.15; PW: 1.28, 1.18; PL: 1.51, 1.39; EL: 0.99, 0.94; TiL: 1.13, 1.06; TaL: 0.93, 0.73; TL: 8.8, 7.5.

Comparative notes

Leptobium fagniezi is readily distinguished from its congeners by the distinctive morphology of the male sternite VII and by the conspicuous shape of the ventral process of the aedeagus. From other congeners occurring in Algeria, except for the following species, it is separated by larger size alone.

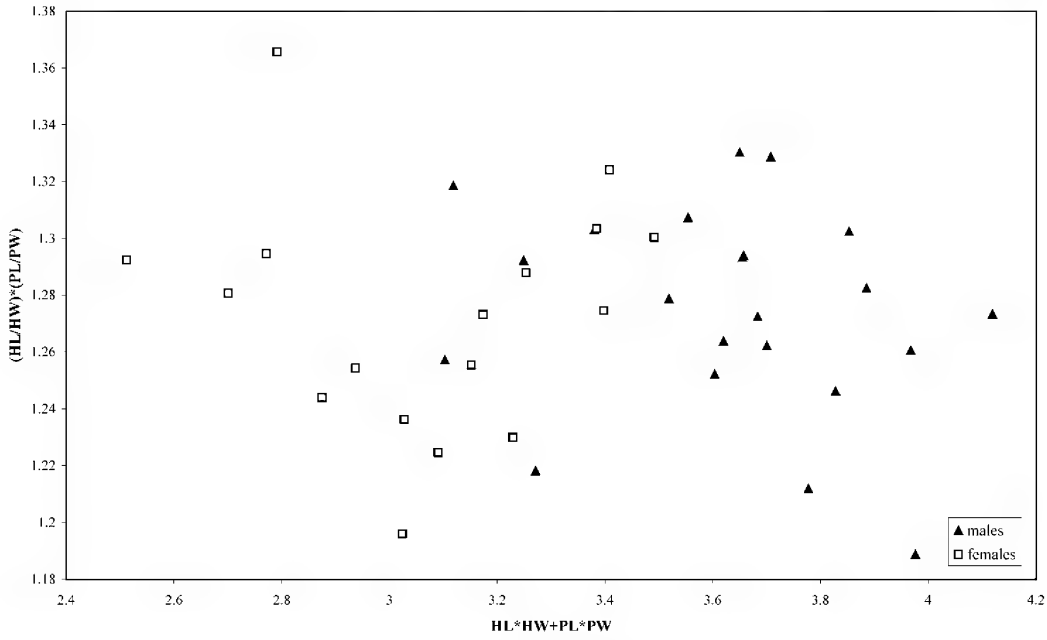


Fig. 318. *Leptobium fagniezi* Jarrige, body shape. "Slenderness" of head and pronotum in relation to body size (see chapter 2).

Distribution and bionomics

The known distribution of this species is confined to northern Algeria (Fig. 301); it seems to be fairly common in the surroundings of Yakouren (Grande Kabylie). The examined material was apparently collected mostly in forest biotopes at altitudes of 700–1300 m, in March, May, June, and October. The October specimen is teneral.

3.34 *Leptobium mouzaiense* Coiffait, 1969 (Figs. 301, 319–322)

Leptobium mouzaiensis [sic]; Coiffait (1969: 857, 881f.).

Type examined

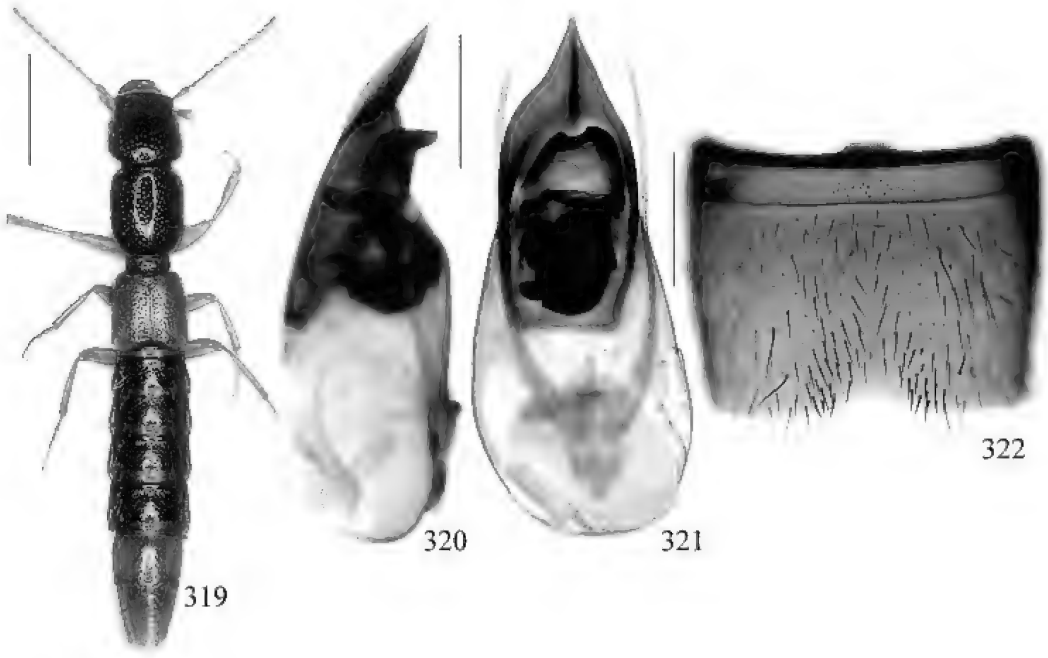
Holotype ♂: Forêt des Mouzaia, Algérie / Holotype / *Leptobium lucidum mouzaiensis* Coiff., H. Coiffait det. 1969 / Muséum Paris / *Leptobium mouzaiense* Coiffait det. V. Assing 2004 (MNHNP).

Additional material examined (total, including type: 5 exs.)

Algeria – 1 ♂, 1 ♀, Gorges de la Chiffa, Ruisseau des Singes, 280–380 m, 4.V.1988, leg. Besuchet, Löbl, Burckhardt (MHNG, cAss); 1 ♂, Hammam Righa (NHMW); 1 ♂, "Algier" (DEI).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 5): HL: 1.34–1.44, 1.40; HW: 1.24–1.34, 1.31; PW: 1.22–1.40, 1.31; PL: 1.46–1.63, 1.53; EL: 1.01–1.03, 1.03; TiL: 1.19–1.32, 1.24; TaL: 0.99–1.13, 1.07; AL: 2.02–2.16, 2.07; TL: 7.7–10.2, 9.2; HL/HW: 1.05–1.08, 1.07; PW/HW: 0.98–1.06, 1.01; PL/PW: 1.13–1.20, 1.16; EL/PL: 0.63–0.70, 0.67; TiL/TaL: 1.11–1.21, 1.16.



Figs. 319–322. *Leptobium mouzaiense* Coiffait. – **319**. Habitus. – **320–321**. Aedeagus in lateral and in ventral view. – **322**. Male sternite VII. – Scale bars: 2 mm (319), 0.5 mm (320–322).

Very large species; habitus as in Fig. 319. On average slightly larger, but otherwise highly similar to *L. fagniezi*, distinguished only by the primary and secondary sexual characters:

♂: sternite VII in posterior area with less pronounced impression and with rather indistinct clusters of modified setae (Fig. 322); aedeagus much larger and with ventral process of distinctive shape, both in lateral and in ventral aspect (Figs. 320, 321).

Comparative notes

From the similar *L. fagniezi*, the species is reliably distinguished only by the male sexual characters. From all other congeners from northwestern Africa, it is separated by larger size alone.

Distribution and bionomics

The species has become known from three localities in northern Algeria (Fig. 301). Apart from the altitude (280–380 m) and the date specified on the labels of the two specimens from Chiffa, no bionomic data are available.

3.35 *Leptobium carinatum* **n. sp.** (Figs. 323–328)

Types

Holotype ♂: TR – Antalya, 1300 m, S Elmalı, 36°34′N, 29°59′E, Camkuyusu, 25.IV.2001, MEYBOHM & BRACHAT / Holotypus ♂ *Leptobium carinatum* sp. n. det. V. ASSING 2003 (cAss).

Paratypes: 1 ♂: TR – Muğla, No. 10, 20 km NNE Fethiye, N-exp. oakwood, 970 m, 36°47′28N, 29°11′29E, 27.III.2002, V. ASSING (cAss); 2 ♂♂: N36°33′ E029°07′, Türkei, Umg. Fethiye, Ölüdeniz, 150 m, MEYBOHM, 27.4.2001 (cAss); 2 ♀♀: TR – Muğla, 10, 610 m, 25 km NNE Fethiye, E Üzümlü, *Q. ilex* etc., 36°43′54N, 29°15′27E, 4.X.2002, leg. ASSING (cAss);

2 ♀♀: TR – Antalya, No. 9, SW Akyazı, NE Belpinar pass, grassland, 870 m, 36°22′24N, 29°29′59E, 26.III.2002, V. Assing & P. Wunderle (cAss, cWun); 2 ♂♂: TR – Antalya, No. 8, 20 km N Kas, S Karaovabeli Pass, *Quercus*, 830 m, 36°23′12N, 29°42′34E, 26.III.2002, P. Wunderle (cWun); 1 ♂, 1 ♀: Anatolia mer. (Lyzien), Beydağl. bei Elmalı, 7.VII.1970, leg. H. Korge (cKor); 1 ♀: Anatolia mer., Heinz leg. / Susuz-dağ ob. Kuruova (Elmalı), 1600–2400 m, 18./19.VII.1971 (cKor); 1 ♂: Anatolia mer., Heinz leg. / Susuz-dağ, Dokuz-Göl (Elmalı), 1700–2000 m, 20.VII.1971 (cAss); 1 ♀: Turquie, Muğla, Göcek, 2.V.75, Besuchet Löbl (MHNG); 1 ♀: 8.3.79 Türkei, Lykien, Kale-Finike / Coll. G. A. Lohse, MHNG-1994 (MHNG).

Etymology

The name (Latin, adjective) refers to the pronounced carina on the dorsal plate of the aedeagus.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 15): HL: 1.22–1.38, 1.31; HW: 1.15–1.28, 1.22; PW: 1.17–1.31, 1.23; PL: 1.38–1.55, 1.45; EL: 0.87–1.03, 0.95; TiL: 1.07–1.24, 1.15; TaL: 0.87–1.07, 0.98; AL: 1.75–1.92, 1.84; TL: 8.4–10.0, 9.2; HL/HW: 1.05–1.11, 1.07; PW/HW: 0.98–1.04, 1.01; PL/PW: 1.13–1.22, 1.18; EL/PL: 0.61–0.71, 0.65; TiL/TaL: 1.12–1.36, 1.18.

Large species (see measurements); habitus as in Fig. 323. Coloration similar to that of *L. melanocephalum*: Head and abdominal segments III–VI, occasionally also anterior margin of segment VII blackish; pronotum, elytra, and abdominal apex rufous; legs and antennae reddish yellow.

Head oblong (see ratio HL/HW); puncturation moderately sparse, interstices on dorsal surface on average 2–3 times as wide as diameter of punctures, often with interspersed micropuncturation; eyes relatively large, temples usually little more than 1.5 times the length of eyes in dorsal view. Antennae with antennomere III about 1.5 times as long as II, X approximately as long as wide.

Pronotum distinctly oblong and approximately as wide as head (see ratios PL/PW and PW/HW); puncturation similar to that of head, but usually at least slightly denser.

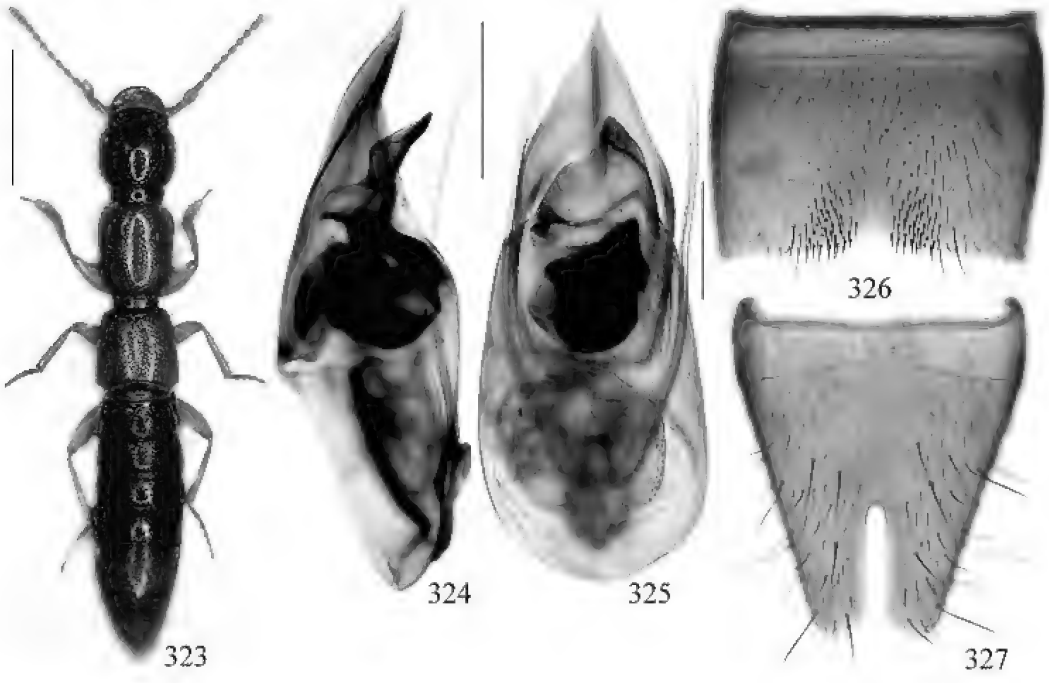
Elytra distinctly shorter than pronotum (see ratio EL/PL); puncturation less well-defined and usually slightly denser than that of pronotum. Hind wings absent. Legs relatively slender (see measurements and ratio TaL/TiL).

Abdomen slightly wider than elytra; puncturation of segments III–VI rather dense and shallow; microsculpture usually distinct and composed of transverse striae; posterior margin of tergite VII with indistinct rudiments of a palisade fringe.

♂: sternite VII with centrally concave posterior margin, in posterior median area depressed and without pubescence, on either side of this depression with conspicuous cluster of rather dense dark setae (Fig. 326); sternite VIII as in Fig. 327; dorsal plate of aedeagus almost symmetrical and dorsally with pronounced median carina, ventral process distinctly asymmetrical (Figs. 324, 325).

Intraspecific variation

Max/min ratios: HL: 1.14; HW: 1.11; PW: 1.21; PL: 1.12; EL: 1.19; TiL: 1.15; TaL: 1.24; AL: 1.09; HL/HW: 1.05; PW/HW: 1.05; PL/PW: 1.08; EL/PL: 1.16; TiL/TaL: 1.22. Compared to other species of the genus, variation of size-related and other characters is moderate.



Figs. 323–327. *Leptobium carinatum* n. sp. – **323**. Habitus (holotype). – **324–325**. Aedeagus in lateral and in ventral view. – **326**. Male sternite VII. – **327**. Male sternite VIII. – Scale bars: 2 mm (323), 0.5 mm (324–327).

Comparative notes

The species is characterised especially by the pronounced dorsal carina of the dorsal plate of the aedeagus. In southern Turkey, *L. carinatum* is the only large species with a red pronotum. Other species of similar coloration are much smaller.

Distribution and bionomics

Leptobium carinatum is apparently endemic to southwestern Anatolia (Muğla, Antalya) (Fig. 328). It was collected in grassland and in oak forests at altitudes between 610 and approximately 2000 m in spring (March through May), July, and October.

3.36 *Leptobium mutabile* **n. sp.** (Figs. 329–337)

Types

Holotype ♂: TR – Antalya, No. 7, 60 km SSW Antalya, Çiralı, 220 m, 36°25′54N, 30°25′59E, 25.III.2002, V. Assing / Holotypus ♂ *Leptobium mutabile* sp. n. det. V. Assing 2003 (cAss).

Paratypes: 1 ♀: same data as holotype, but leg. Wunderle (cWun); 1 ♂: TR – Antalya, No. 4, E Kumluca, 335 m, grassland, under stones, 36°21′12N, 30°22′41E, 25.III.2002, V. Assing (cAss); 1 ♂, 1 ♀: 8.3.79, Türkei, Lykien, Kale-Finike (MHNG, cAss); 1 ♂: S-Türkei, Region Alanya, b. Ilica (340 m) u. Sugözü (700 m), 10) unter Steinen und Kuhdung an Berghang (SO), 11) b. Friedhof, 15.III.2000, leg. Rose & Bellmn [= Bellmann] (cRos).

Etymology

The name (Latin, adjective) refers to the variable shape of the ventral process of the aedeagus.

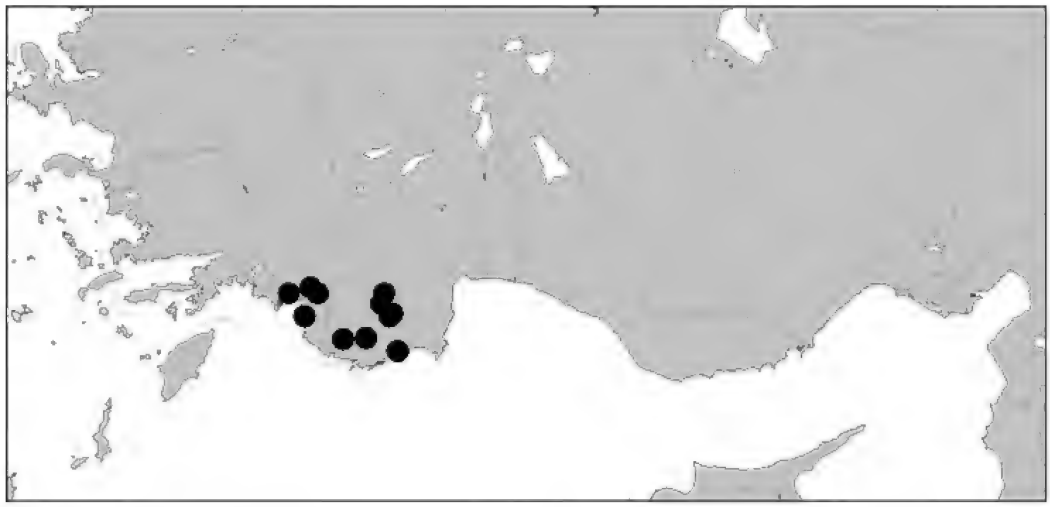


Fig. 328. Distribution of *Leptobium carinatum* n. sp. in southern Turkey.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 9): HL: 0.78–0.91, 0.84; HW: 0.74–0.88, 0.78; PW: 0.78–0.90, 0.81; PL: 0.93–0.99, 0.95; EL: 0.60–0.66, 0.62; TiL: 0.66–0.78, 0.73; TaL: 0.60–0.68, 0.65; AL: 1.05–1.11, 1.09; TL: 5.4–7.5, 6.3; HL/HW: 1.04–1.11, 1.08; PW/HW: 1.01–1.07, 1.04; PL/PW: 1.10–1.23, 1.17; EL/PL: 0.63–0.67, 0.65; TiL/TaL: 1.03–1.24, 1.13.

Small species (see measurements); habitus as in Fig. 329. Coloration similar to that of *L. melanocephalum*: head and abdominal segments III–VI blackish, sometimes also the anterior part of segment VII somewhat infuscate; pronotum, elytra, and abdominal apex rufous; appendages reddish yellow.

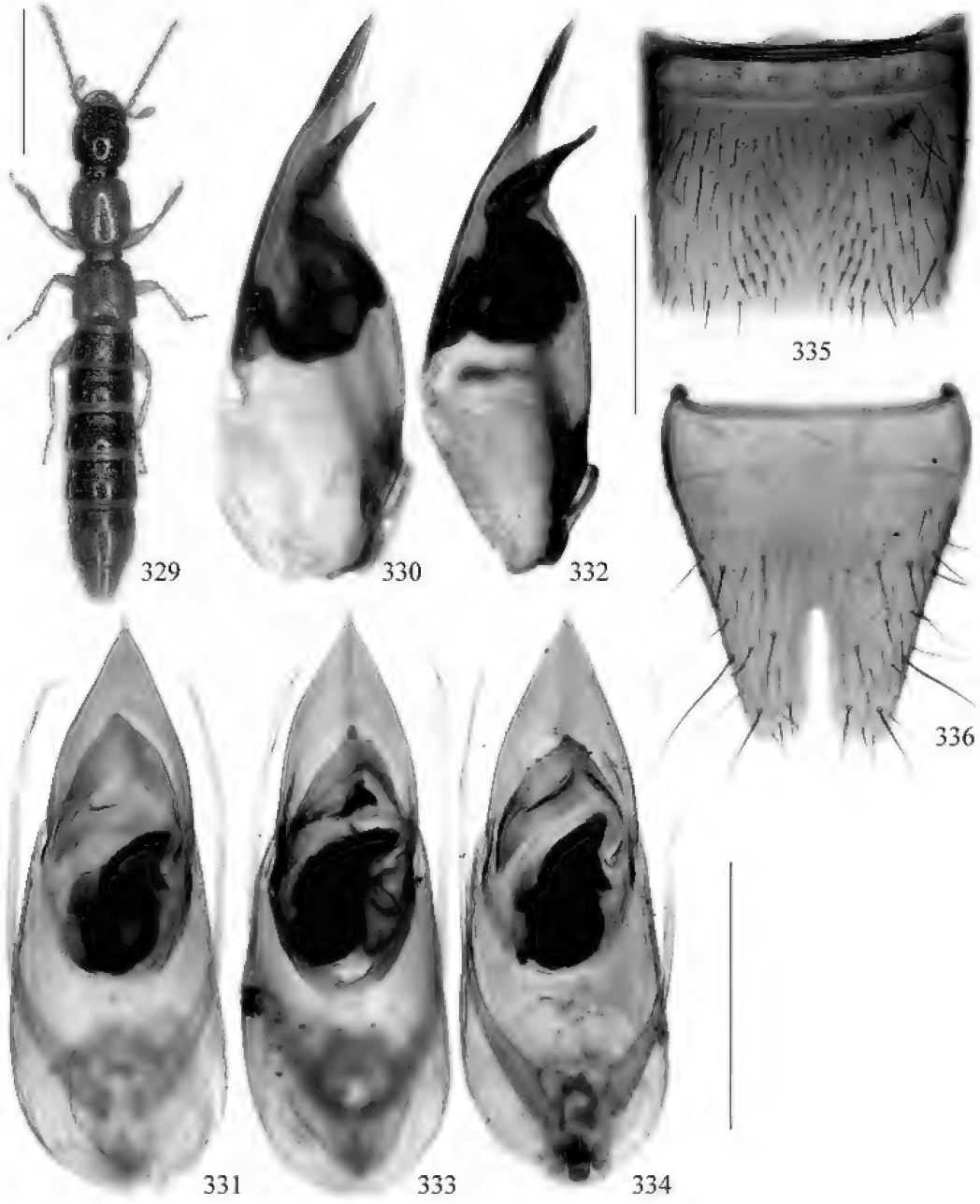
Head oblong (see ratio HL/HW); eyes moderately large; postocular region at least slightly less than twice the length of eyes in dorsal view; puncturation moderately coarse and moderately sparse, interstices on dorsal surface on average about 2–3 times as wide as punctures; microsculpture absent. Antennae with antennomere III approximately as long as II or slightly longer.

Pronotum slightly wider than head and moderately oblong (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation about as coarse as that of head, but denser; microsculpture absent.

Elytra short (see ratio EL/PL); puncturation finer, shallower and less well-defined than that of pronotum. Hind wings reduced. Tarsi relatively long, metatarsus only slightly shorter than metatibia.

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse striae and transverse meshes; posterior margin of tergite VII without or only with indistinct traces of palisade fringe.

♂: sternite VII with rather weakly modified pubescence, in posterior median area with two weakly delimited clusters of dark and slightly stouter setae (Fig. 335); sternite VIII as in Fig. 336; aedeagus almost symmetrical, dorsal plate with ventral median carina, ventral process of variable shape, apically distinctly pointed (Figs. 330–334).



Figs. 329–336. *Leptobium mutabile* n. sp. – **329**. Habitus. – **330–334**. Aedeagus in lateral and in ventral view (330–331: Alanya; 332–333: Ciralı; 334: Finike). – **335**. Male sternite VII (Alanya). – **336**. Male sternite VIII (Ciralı). – Scale bars: 2 mm (329), 0.5 mm (330–336).

Intraspecific variation

Max/min ratios: HL: 1.16; HW: 1.18; PW: 1.14; PL: 1.07; EL: 1.10; TiL: 1.19; TaL: 1.14; AL: 1.06; HL/HW: 1.07; PW/HW: 1.05; PL/PW: 1.12; EL/PL: 1.06; TiL/TaL: 1.20. Compared to other species of the genus, only little variation of size-related characters was observed. The shape of the ventral process of the aedeagus, however, is highly variable (Figs. 330–335).

Comparative notes

From *L. assingi*, which too occurs in southwestern Anatolia and which is not only similar in size and other external characters but also in the shape of the aedeagus, *L. mutabile* is readily distinguished especially by the reddish pronotum. From the similarly coloured species of the Eastern Mediterranean it is separated as follows:

from *L. melanocephalum* (Greece) by smaller size (see measurements), relatively larger eyes, a sparser puncturation of the elytra and abdomen, a much smaller aedeagus, and a dorsal plate with distinct median carina;

from *L. carinatum* (southwestern Anatolia) easily by much smaller size, a shorter antennomere III, a less strongly modified male sternite VII, and an aedeagus of completely different morphology and much smaller size;

from *L. drusiacum* (Middle East), which is of similar size and external appearance, by the more distinctly modified male sternite VII, the posteriorly more deeply incised male sternite VIII (in *L. drusiacum*, the incision is distinctly less than half the length of the sternite) and the pointed ventral process of the aedeagus;

for distinction from *L. geminum* see the comparative notes in the following species section.

Distribution and bionomics

Leptobium mutabile has been found in four localities in Antalya, southwestern Anatolia (Fig. 337). The types were collected under stones in grassland or sifted from leaf litter at altitudes below 700 m. All the types were taken in March.

3.37 *Leptobium geminum* **n. sp.** (Figs. 337–342)

Types

Holotype ♂: Anatolia mer. HEINZ leg. / zw. Hassa und Kilis, ca. 800 m, 20.IV.1973 / Holotypus ♂ *Leptobium geminum* sp. n. det. V. ASSING 2003 (cKor).

Paratypes: 1 ♂: same data as holotype (cAss); 1 ♀: Anatolia mer. HEINZ leg. 1973 / Sakcagözü [= Sakçagöze], 900–1300 m, 21.IV. (cKor).

Etymology

The name (Latin, adjective: like a twin) refers to the pronounced external resemblance with *L. mutabile*.

Description

Measurements (in mm) and ratios (range; n = 3): HL: 0.84–0.91; HW: 0.78–0.87; PW: 0.82–0.89; PL: 0.93–0.99; EL: 0.62–0.64; TiL: 0.74–0.78; TaL: 0.60–0.68; AL: 1.05–1.07; TL: 6.2–7.0; HL/HW: 1.05–1.08; PW/HW: 1.00–1.05; PL/PW: 1.12–1.14; EL/PL: 0.65–0.67; TiL/TaL: 1.12–1.24.

Small species (see measurements); habitus as in Fig. 338. External and sexual characters as in *L. mutabile*, but distinguished as follows:

Abdominal segment VII distinctly bicoloured: anterior $^1/_2$–$^2/_3$ blackish, posterior $^1/_2$–$^1/_3$ rufous.

♂: sternite VII weakly modified, in posterior median area with indistinct cluster of relatively sparse dark setae (Fig. 341); sternite VIII with very short posterior incision (Fig. 342); dorsal plate of aedeagus with pair of distinct dorsal carinae, ventral process apically rounded (Figs. 339, 340).

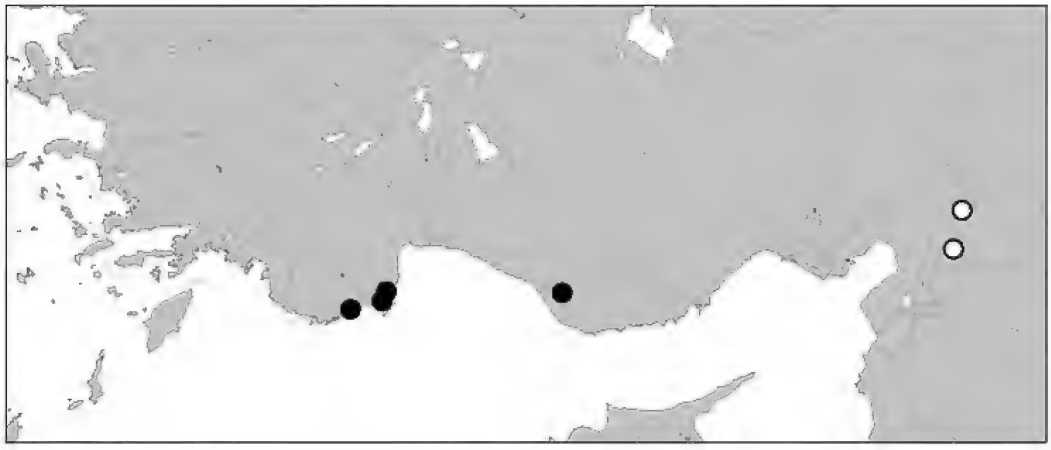


Fig. 337. Distributions of *Leptobium mutabile* n. sp. (●) and *L. geminum* n. sp. (○) in southern Turkey.

Comparative notes

The only other small congener of similar coloration and occurring in southern Turkey is *L. mutabile*, whose dorsal plate of the aedeagus has one ventral carina (not a pair of dorsal carinae) and whose ventral process is apically pointed; for additional characters see description above. The similarly coloured *L. carinatum* from southwestern Anatolia is much larger.

Distribution and bionomics

Leptobium geminum was collected in two localities in the province of Gaziantep, central southern Anatolia (Fig. 337), at altitudes of 800–1300 m. All three types were found in April.

3.38 *Leptobium drusiacum* Coiffait, 1969 (343–347, 375)

Leptobium drusiacum; Coiffait (1969: 850, 875).

Type examined

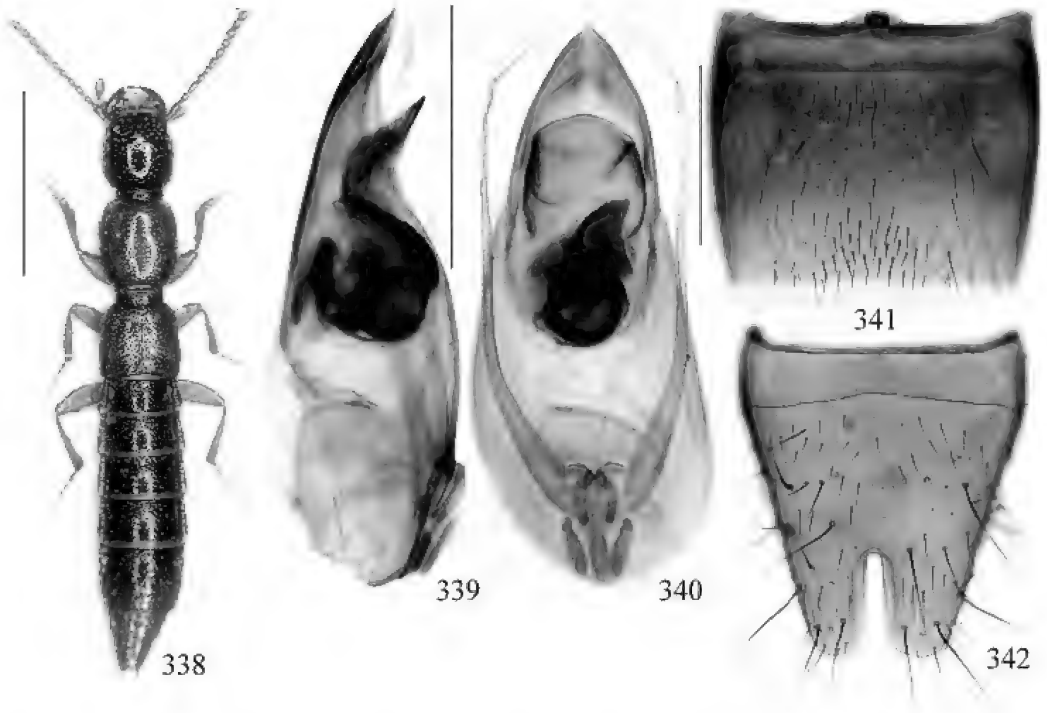
Holotype ♂: Dj. Cheik / Museum Paris coll. H. Coiffait / Holotype / *Leptobium drusiacum* Coiff., H. Coiffait det. 1969 / *Leptobium drusiacum* Coiffait det. V. Assing 2003 (MNHNP).

Description

Measurements (in mm) and ratios (holotype): HL: 0.87; HW: 0.76; PW: 0.80; PL: 0.97; EL: 0.62; TiL: 0.74; TaL: 0.68; AL: 1.03; TL: 5.3; HL/HW: 1.14; PW/HW: 1.05; PL/PW: 1.21; EL/PL: 0.64; TiL/TaL: 1.09.

Small species (see measurements); habitus as in Fig. 343. Coloration similar to *L. melanocephalum*, i. e. head and abdominal segments III–VI blackish; pronotum, elytra, and abdominal apex rufous; appendages reddish yellow.

Head moderately oblong (see ratio HL/HW); eyes relatively small, slightly less than half the length of postocular region in dorsal view; puncturation coarse and very sparse, in median dorsal areas without punctures; microsculpture absent. Antennae with antennomere III distinctly (but less than 1.5 ×) longer than II.



Figs. 338–342. *Leptobium geminum* n. sp. – **338.** Habitus. – **339–340.** Aedeagus in lateral and in ventral view. – **341.** Male sternite VII. – **342.** Male sternite VIII. – Scale bars: 2 mm (338), 0.5 mm (339–342).

Pronotum distinctly wider than head and distinctly oblong (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation finer and denser than that of head; microsculpture absent.

Elytra short (see ratio EL/PL) and with relatively coarse puncturation. Hind wings reduced.

Abdomen approximately as wide as elytra; microsculpture composed of dense and fine transverse striae; posterior margin of tergite VII without palisade fringe.

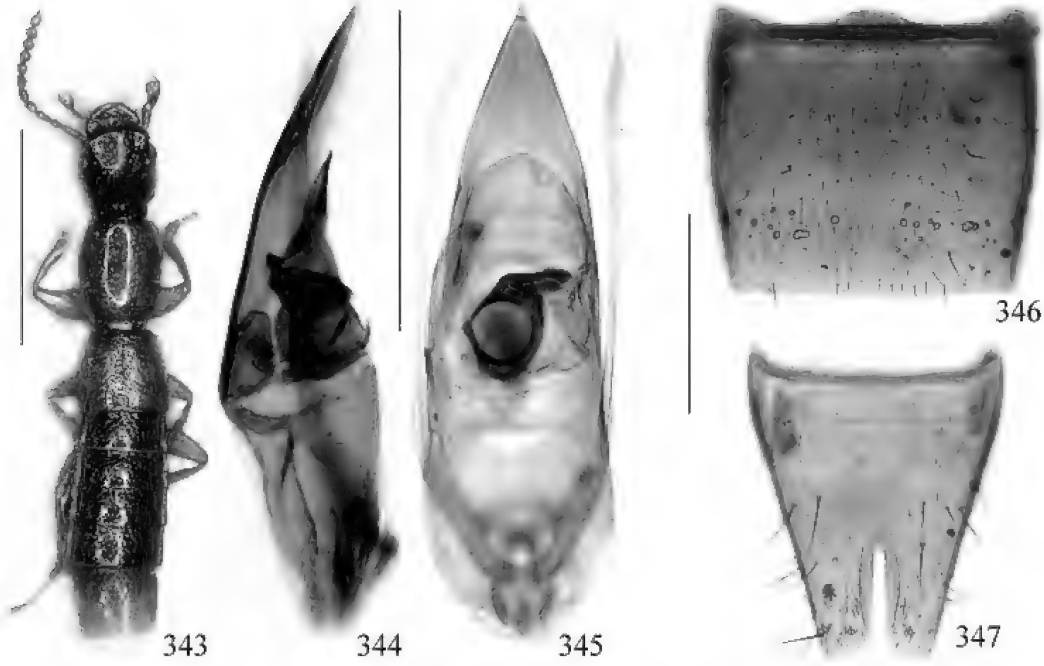
♂: sternite VII unmodified (Fig. 346); sternite VIII not distinctive (Fig. 347); aedeagus small, with almost symmetrical dorsal plate and ventral process (Figs. 344, 345).

Comparative notes and systematics

From *L. geminum*, the geographically closest congener of similar size and coloration, *L. drusiacum* is distinguished especially by the long and slender dorsal plate and ventral process of the aedeagus.

Distribution and bionomics

The species has become known only from the type locality, Djebel Cheik (Mount Hermon), at the border between Lebanon and Syria (Fig. 375). Bionomic data are not available.



Figs. 343–347. *Leptobium drusiacum* Coiffait, holotype. – **343.** Habitus. – **344–345.** Aedeagus in lateral and in ventral view. – **346.** Male sternite VII. – **347.** Male sternite VIII. – Scale bars: 2 mm (343), 0.5 mm (344–347).

3.39 *Leptobium obesum* (Fauvel, 1875) (Figs. 348–357, 375)

Dolicaon obesus; Fauvel (1875: xxi).
Leptobium cisjordanicum; Coiffait (1969: 849, 866), **n. syn.**
Leptobium bruleriei; Coiffait (1969: 850, 866 f.), **n. syn.**

Types examined

D. obesus: Lectotype ♂, here designated: Liban / *obesus* Fvl. / Ex-Typis / Coll. et det. A. Fauvel R.I.Sc.N.B. 17.479 / Lectotypus *Dolicaon obesus* Fauvel desig. V. Assing 2004 / *Leptobium obesum* (Fauvel) det. V. Assing 2004 (IRSNB). – Paralectotype ♂ [teneral]: same data as lectotype (IRSNB).

L. cisjordanicum: Holotype ♂: Naplouse / 199 / Museum Paris coll. H. Coiffait / Holotype / *Leptobium cisjordanicum* Coiff., H. Coiffait det. 1969 (MNHNP).

L. bruleriei: Holotype ♂: Liban / Museum Paris coll. H. Coiffait / Holotype / *Leptobium bruleriei* Coiff., H. Coiffait det. 1969 (MNHNP).

Additional material examined (total, including types: 10 exs.)

Lebanon – 3 exs., Libanon bor. Bcharré, Les Cèdres, 15.V.2000, leg. Rapuzzi (cKap, cAss).
Israel – 3 exs., Jaffa (IRSNB, cAss).

Comments

The original description of *D. obesus* is based on an unspecified number of syntypes from "Naplouse, Liban (de la Brûlerie)". The material from Nablus was not found and may well refer to a different species. In order to stabilise the name, the male syntype in better condition is designated as the lectotype.

A comparison of the holotypes of *L. cisjordanicum* and *L. bruleriei* with material of *L. obesum* from other localities in the Middle East revealed no significant differences in the external and sexual characters suggesting that they should represent dis-

tinct species. The observed differences, especially the size and the shape of the ventral process of the aedeagus, are within the usual range of intraspecific variation of *Leptobium* species (Figs. 351–355). Consequently, the types of the three names are here regarded as conspecific, a conclusion also supported by the available biogeographic data, and *L. cisjordanicum* and *L. bruleriei* are placed in the synonymy of the senior name *L. obesum* (Fauvel).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 10): HL: 0.91–1.07, 0.99; HW: 0.96–1.08, 1.02; PW: 1.01–1.15, 1.09; PL: 1.07–1.26, 1.16; EL: 0.60–0.74, 0.68; TiL: 0.80–0.95, 0.87; TaL: 0.70–0.89, 0.80; AL: 1.38–1.67, 1.58; TL: 6.7–8.3, 7.4; HL/HW: 0.93–1.00, 0.97; PW/HW: 1.04–1.09, 1.06; PL/PW: 1.02–1.09, 1.06; EL/PL: 0.56–0.61, 0.59; TiL/TaL: 1.00–1.15, 1.09.

Species of moderate size; habitus as in Figs. 348, 349. Coloration similar to *L. melanocephalum*: head, abdominal segments III–VI, and anterior $^2/_3$ of abdominal segment VII blackish; pronotum, elytra, and apex of abdomen rufous; legs and antennae reddish yellow.

Head usually somewhat transverse (see ratio HL/HW); eyes relatively small, slightly less than half the length of postocular region in dorsal view; puncturation very sparse, interstices 3–5 times the width of punctures on dorsal surface; microsculpture absent. Antennae with antennomere III distinctly (almost 1.5 ×) longer than II.

Pronotum distinctly wider than head and only weakly oblong (see ratios PW/HW and PL/PW); lateral margins distinctly convex in dorsal view; maximal width approximately in the middle; puncturation similar to that of head; microsculpture absent.

Elytra very short (see ratio EL/PL) and somewhat flattened, near posterior angles sometimes with shallow impression; puncturation about as sparse as that of pronotum, but finer. Hind wings reduced. Metatarsus relatively long (see ratio TaL/TiL).

Abdomen almost 1.1 times as wide as elytra; microsculpture composed of dense and fine transverse meshes; posterior margin of tergite VII without palisade fringe.

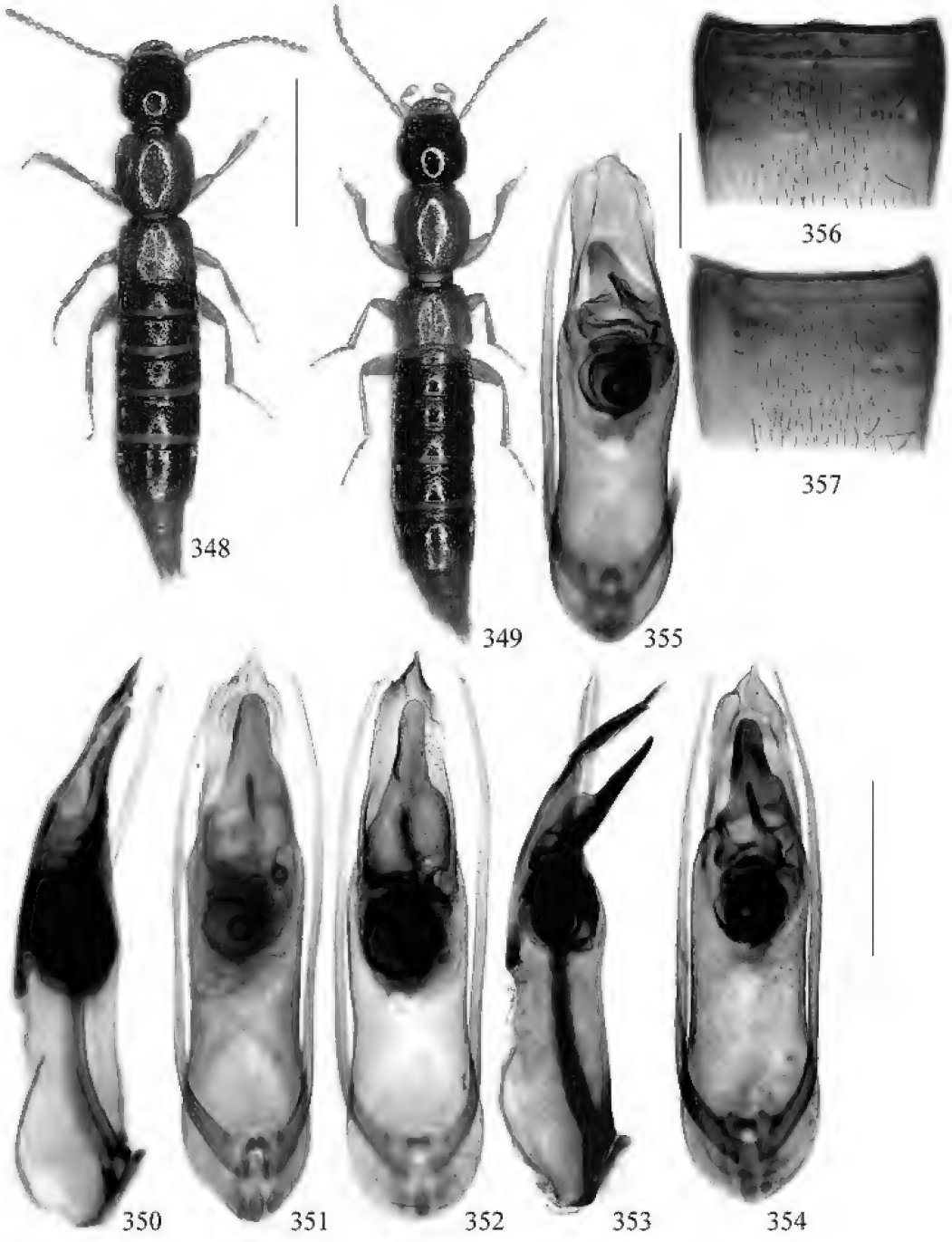
♂: sternite VII unmodified (Figs. 356, 357); sternite VIII with posterior incision long and narrow, but not reaching middle; aedeagus long and slender, with rather stout and long parameres, with a slender dorsal plate with an apex of somewhat irregular outline, and with a relatively long, somewhat asymmetrical, and dorsally carinate ventral process (Figs. 350–355).

Intraspecific variation

Max/min ratios: HL: 1.18; HW: 1.13; PW: 1.14; PL: 1.17; EL: 1.24; TiL: 1.18; TaL: 1.26; AL: 1.21; HL/HW: 1.08; PW/HW: 1.05; PL/PW: 1.07; EL/PL: 1.10; TiL/TaL: 1.15. Intraspecific variation is moderate. The most variable characters are the lengths of the elytra, the tarsi, and the aedeagus.

Comparative notes and systematics

This species is distinguished from the preceding species of the genus by various conspicuous characters, most of them evidently autapomorphies: the very sparse puncturation of the forebody, the relatively long antennomere III, the usually slightly transverse head, a weakly oblong pronotum, distinctly convex lateral margins of



Figs. 348–357. *Leptobium obesum* (Fauvel) (351, 357: lectotype; 348, 355: holotype of *L. cisjordanicum* Coiffait; 353–354, 356: holotype of *L. bruleriei* Coiffait). – **348–349**. Habitus. – **350–355**. Aedeagus in lateral and in ventral view. – **356–357**. Male sternite VII. – Scale bars: 2 mm (348–349), 0.5 mm (350–357).

the pronotum, very short and somewhat flattened elytra, abdominal microsculpture composed of fine meshes (not striae), the absence of a sexual dimorphism of the abdominal sternite VII, and a highly derived morphology of the aedeagus (see description above).

Distribution and bionomics

Based on the revised records, the species is known from Lebanon and Israel (Fig. 375). Apart from the data specified on one of the labels (May), no further bionomic data are available.

3.40 *Leptobium arabicum* Coiffait, 1969 (Figs. 358–361)

Leptobium arabicum; Coiffait (1981b: 133f.).

Types examined

Holotype ♂: Hedjaz, coll. P. Nadar / Type / Museum Paris Coll. J. Jarrige / *Leptobium arabicum* H. Coiffait det. 1979 (MNHNP). – Paratypes: 3 ♀♀: same data as holotype (MNHNP).

Additional material examined (total, including types: 5 exs.)

Yemen – 1 ex., Saada, II.1985, leg. de Rougemont (cRou).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 5): HL: 1.15–1.30, 1.24; HW: 1.07–1.17, 1.12; PW: 1.15–1.28, 1.21; PL: 1.23–1.46, 1.39; EL: 0.78–0.99, 0.91; TiL: 1.07–1.22, 1.11; TaL: 0.89–1.17, 1.01; AL: 1.57–1.67, 1.62; TL: 7.4–8.5, 8.0; HL/HW: 1.08–1.15, 1.11; PW/HW: 1.07–1.10, 1.09; PL/PW: 1.14–1.16, 1.15; EL/PL: 0.59–0.68, 0.66; TiL/TaL: 1.04–1.21, 1.10.

Species of moderately large size; habitus as in Fig. 358. Coloration: head blackish brown; pronotum, elytra, abdominal apex, legs, and antennae castaneous to dark brown; abdominal segments III–VI, sometimes also anterior margin of segment VII blackish.

Head distinctly oblong (see ratio HL/HW) and with almost obsolete posterior angles; eyes weakly prominent and moderately large, slightly more than half the length of postocular region in dorsal view; puncturation very sparse, interstices on average 3–4 times the width of punctures on dorsal surface. Antennae slender, antennomere III about 1.5 times as long as II, V usually about 1.5 times as long as wide, and X as wide as long or only weakly transverse.

Pronotum distinctly wider than head and oblong (see ratios PW/HW and PL/PW); lateral margins almost straight and indistinctly tapering caudally in dorsal view; puncturation similar to that of head, but slightly denser.

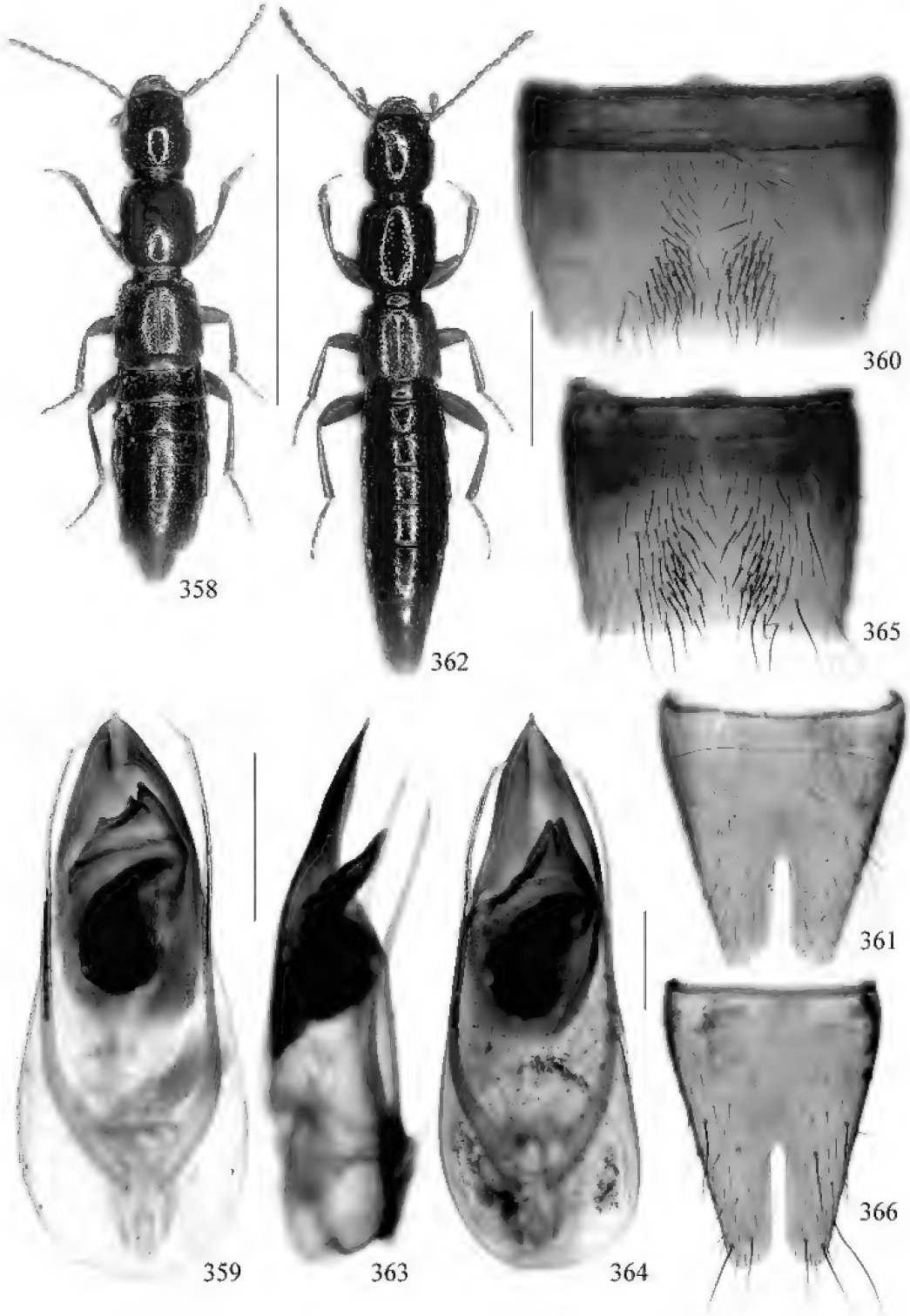
Elytra short (see ratio EL/PL), slightly dilated posteriad; puncturation finer and/or shallower than that of pronotum. Hind wings reduced. Metatarsus rather long in relation to metatibia (see ratio TaL/TiL).

Abdomen about 1.1 times as wide as elytra; microsculpture composed of dense and fine transverse meshes; puncturation fine and relatively dense; posterior margin of tergite VII without palisade fringe.

♂: sternite VII strongly transverse, with broadly and shallowly concave posterior margin, and posteriorly with two rather distinct clusters of relatively dense dark setae (Fig. 360); sternite VIII as in Fig. 361; aedeagus with symmetrical dorsal plate, ventral process apically bifid, i. e. with distinct subapical tooth (Fig. 359).

Comparative notes and systematics

This and the following species form a rather well-defined species group characterised by a rather weakly constrasting coloration, a relatively slender head, slender



Figs. 358–366. *Leptobium arabicum* Coiffait (358–361) and *L. yemenicum* n. sp. (362–366). – **358**, **362**. Habitus. – **359**, **363–364**. Aedeagus in lateral and in ventral view. – **360**, **365**. Male sternite VII. – **361**, **366**. Male sternite VIII. – Scale bars: 5 mm (358, 362), 0.5 mm (359–361, 363–366).

antennae, a distinctly modified male sternite VII, and the morphology of the aedeagus, especially the weakly sclerotised median line of the dorsal plate and the presence of a subapical tooth on the ventral process. The distribution of this group is apparently confined to Arabia. For distinction from the similar *L. yemenicum* see the comparative notes in the following species section.

Distribution and bionomics

The species has been recorded only from Hedjas, the part of Saudi Arabia bordering on the east coast of the Red Sea, and from one locality in northern Yemen.

3.41 *Leptobium yemenicum* **n. sp.** (Figs. 362–366)

Types

Holotype ♂: Yemen – Maswar-Gebirge, Umg. Bayt al Main, 3050 m, 3.4.96, ERBER / Holotypus ♂ *Leptobium yemenicum* sp. n. det. V. ASSING 2003 (cAss).

Paratypes: 2 ♂♂, 2 ♀♀: same data as holotype (cAss).

Etymology

The name (Latin, adjective) refers to the fact that the species is known only from Yemen.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 5): HL: 1.13–1.17, 1.14; HW: 1.03–1.09, 1.05; PW: 1.15–1.17, 1.16; PL: 1.28–1.38, 1.33; EL: 0.82–0.89, 0.86; TiL: 1.01–1.15, 1.08; TaL: 0.96–0.99, 0.97; AL: 1.57–1.67, 1.63; TL: 6.9–8.5, 7.7; HL/HW: 1.08–1.10, 1.08; PW/HW: 1.08–1.12, 1.10; PL/PW: 1.11–1.18, 1.15; EL/PL: 0.63–0.67, 0.64; TiL/TaL: 1.07–1.19, 1.12.

Habitus as in Fig. 362. Similar to *L. arabicum*, but distinguished as follows:

Of lower average size (see measurements). Head, pronotum, abdominal segments III–VI, and anterior half of VII blackish; elytra and abdominal apex rufous; legs and antennae rufous to brown.

Head with more distinct posterior angles; eyes more prominent and larger; postocular region about 1.5 times as long as eyes in dorsal view.

Abdomen with coarser puncturation and with very indistinct traces of a palisade fringe at the posterior margin of tergite VII.

♂: sternite VII less strongly transverse and more distinctly modified, with two more extensive clusters of more numerous, longer, and darker setae (Fig. 365); sternite VIII longer and more slender (Fig. 366); aedeagus with more slender dorsal plate, ventral process less asymmetrical and less transverse (Figs. 363, 364).

Comparative notes

The species is readily distinguished from the closely related *L. arabicum* by the different coloration, the smaller size, the more strongly modified and less transverse sternite VII, and by the different morphology of the aedeagus. From all other species of the genus it is separated especially by the aedeagus: the transparent midline of the dorsal plate and the presence of a subapical tooth on the ventral process.

Distribution and bionomics

The species has become known only from one locality (approximately 15°36′N, 43°48′E) in the Maswar range, Yemen, where it was collected at an altitude of slightly more than 3000 m.

3.42 *Leptobium venustum* (Baudi, 1848) (Figs. 367–375)

Dolicaon venustus; BAUDI (1848: 134).
Leptobium jordanicum; COIFFAIT (1981a: 18f.), **n. syn.**

Types examined

D. venustus: Holotype ♀ [head and pronotum missing]: 5 03 / *Dol. venustus* Siria / *Dolicaon venustus* / *Leptobium venustum* (Baudi) V. I. GUSAROV det. 2003 / Syntypus *Leptobium venustum* rev. V. ASSING 2004 (MRSNT).

L. jordanicum: Holotype ♂: O. Jordan. J. KLAPPERICH / Amman, 800 m, 8.2.1958 / u. Steinen / Type / *Leptobium jordanicum*, H. COIFFAIT det. 1980 / *Leptobium venustum* (Baudi) det. V. ASSING 2003 (MNHNP). – Paratype ♀: O. Jordan., J. KLAPPERICH / Jubeiha N. Am., 1000 m, 4.III.1956 / Allotype / Museum Paris coll. H. COIFFAIT / *Leptobium jordanicum*, H. COIFFAIT det. 1980 / *Leptobium venustum* (Baudi) det. V. ASSING 2003 (MNHNP).

Additional material examined (total, including types: 80 exs.)

Jordan – 2 exs., Amman env., 9.IV.1965, leg. KLAPPERICH (NHMW, cAss); 5 exs., 10 km NNE Jerash, 19.–20.IV.2002, leg. SNIŽEK (cSch, cAss); 1 ex., N Amman, W Al Aluk, 27.IV.2002, leg. SNIŽEK (cSch); 2 exs., Mount Nebo [31°46N, 35°45E] (IRSNB).

Lebanon – 1 ex., Beyrouth (NHMW).

Israel/West Bank – 6 exs., Jerusalem, III.1933, leg. SCHATZMAYR (MCSNM, cAss); 1 ex., Jerusalem, IV.1933, leg. KOCH (MCSNM); 12 exs., Jerusalem, leg. KRAATZ, REITTER, U. SAHLBERG, etc. (HNHM, IRSNB, MNHUB, NHMW, cAss); 2 exs. [both with workers of *Messor* sp. attached to the pins], Jerusalem, 1.III.1885, leg. LEUTHNER (DEI); 1 ex., Jerusalem, 1.VI.1954, leg. THEODOR (NHMW); 1 ex., Bethlehem, 15.III.1933, leg. SCHATZMAYR (NHMB); 1 ex., Nazareth, leg. U. SAHLBERG (HNHM); 12 exs., Nazareth (DEI, IRSNB); 2 exs., "Judea", leg. U. SAHLBERG (HNHM); 1 ex., coast, Mt. Carmel, 100 m, 17.IV.1982, leg. BESUCHET & LÖBL (MHNG); 1 ex., "Gal. Kana", leg. U. SAHLBERG (HNHM); 5 exs., Haifa, Mt. Carmel, III.1933, leg. SCHATZMAYR (MCSNM, NHMB, cAss); 1 ex., Kiryat Anawim, 25.IV.1933, leg. KOCH (MCSNM); 5 exs., Haifa ["Caifa"], leg. REITTER, SCHUMACHER (HNHM, NHMW, cAss); 1 ex., Sede ["Sde"] Boqer, experimental plot, 16.II.1985, leg. JÄCH (cAss); 1 ex., N Be'er Sheva, NW Lahav, 350 m, 12.II.1987, leg. SCHAWALLER & SCHMALFUSS (SMNS); 1 ex., Jordan Valley, 28–40 km N Jeriho, 21.III.1995, leg. SAMA (SMNS); 1 ex., Janin ["Jenin"], 23.III.1936, leg. FREY (NHMB); 4 exs., "Palaestina" (HNHM, NHMW).

Egypt – 1 ex., Sinai, Gebel Katherîna, 2630 m (cAss).

Locality not specified – 6 exs., "Syria" (DEI, IRSNB, NHMW).

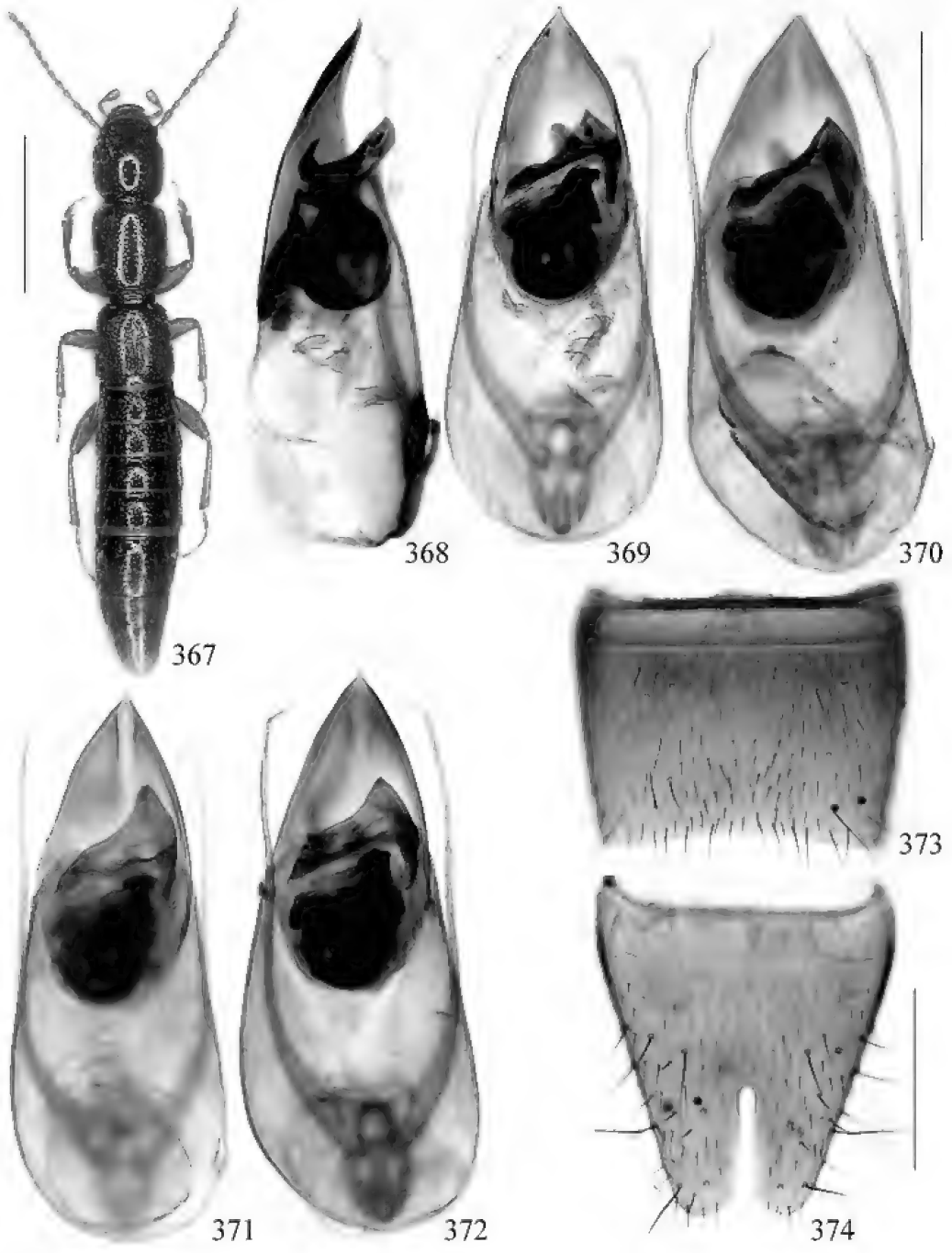
Comments

The original description of *Dolicaon venustus* is based on "unicum exemplar ♀ Hierosolymis [= Jerusalem] legit D. TRUQUII" (BAUDI 1848). The BAUDI collection contains only a single specimen of *L. venustum*, apparently the holotype, despite the specification "Siria" on the label.

According to the original description of *L. jordanicum*, the male holotype is deposited in the HNHM; it was found, however, in the collections of the MHNG. A comparison with material of *L. venustum* revealed significant differences neither in the external nor in the male sexual characters, so that *L. jordanicum* is here synonymised with *L. venustum*.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 46): HL: 0.89–1.13, 0.98; HW: 0.80–1.07, 0.89; PW: 0.80–1.07, 0.92; PL: 0.97–1.24, 1.08; EL: 0.62–0.82, 0.73; TiL: 0.78–1.01, 0.85; TaL: 0.70–0.95, 0.76; AL: 1.17–1.44, 1.29; TL: 5.6–8.6, 6.6; HL/HW: 1.05–1.15, 1.10; PW/HW: 0.98–1.11, 1.03; PL/PW: 1.12–1.23, 1.17; EL/PL: 0.62–0.69, 0.68; TiL/TaL: 1.02–1.21, 1.12.



Figs. 367–374. *Leptobium venustum* (Baudi). – **367.** Habitus. – **368–372.** Aedeagus in lateral and in ventral view. – **373.** Male sternite VII. – **374.** Male sternite VIII. – Scale bars: 2 mm (367), 0.5 mm (368–374).

Species of moderate size (see measurements); habitus as in Fig. 367. Coloration: forebody and abdominal apex bright reddish; abdominal segments III–VI and often also anterior margin of VII blackish; paraterga usually ferrugineous to brownish; legs and antennae dark yellow to reddish yellow.

Head moderately oblong (see ratio HL/HW); eyes moderately large, approximately half the length of postocular region in dorsal view or slightly larger; punctuation coarse and sparse, interstices on dorsal surface on average 2–3 times as wide as punctures. Antennae with antennomere III slightly longer than II.

Pronotum approximately as wide as or slightly wider than head, and distinctly oblong (see ratios PW/HW and PL/PW); lateral margins subparallel or weakly converging caudad in dorsal view; puncturation similar to that of head.

Elytra at suture much shorter than pronotum (see ratio EL/PL); puncturation similar to that of pronotum, but less well-defined and often denser. Hind wings reduced.

Abdomen slightly wider than elytra; microsculpture composed of dense and fine transverse striae, on posterior (VII–VIII) tergites predominantly of transverse and isodiametric meshes; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with weakly concave posterior margin, in posterior median area with weakly delimited area with sparse dark setae (Fig. 373); sternite VIII with posterior incision not reaching middle (Fig. 374); dorsal plate of aedeagus symmetrical, dorsally with pair of weakly pronounced carinae; ventral process short, transverse, and distinctly asymmetrical, dorsally with pronounced process; parameres with numerous and rather long setae (Figs. 368–372).

Intraspecific variation

Max/min ratios: HL: 1.28; HW: 1.33; PW: 1.33; PL: 1.28; EL: 1.33; TiL: 1.29; TaL: 1.35; AL: 1.23; HL/HW: 1.10; PW/HW: 1.13; PL/PW: 1.10; EL/PL: 1.26; TiL/TaL: 1.18. As in other more widespread species of the genus, intraspecific variation of size-related characters (see ratios) and of the aedeagal shape (Figs. 368–372) is pronounced.

Comparative notes

From other *Leptobium* species occurring in the Middle East, *L. venustum* is readily distinguished by the coloration, its moderate size, and the morphology of the aedeagus.

Distribution and bionomics

The species is apparently relatively widespread in the Middle East (Fig. 375). An additional record is reported by DRUGMAND (1989). The record from Crete by SCHEERPELTZ (1964) refers to *L. creticum*. The material with specified dates was collected in February (2 specimens), March (16 specimens), and April (11 specimens). Two specimens were apparently found in nests of *Messor* sp. (Formicidae).

3.43 *Leptobium semirufum* (Fauvel, 1875) (Figs. 376–378)

Dolicaon semirufus; FAUVEL (1875: xxi).

Type examined

Lectotype ♂ [dissected prior to present study; apex of aedeagus damaged], present designation: Damas / Taschkent, Turkestan / *semirufus* Fauv. / Ex-Typis / R.I.Sc.N.B. 17.479, *Dolicaon semirufus* Fauv. Coll. et det. A. FAUVEL / Lectotypus ♂ *Dolicaon semirufus* Fauvel desig. V. ASSING 2004 / *Leptobium semirufum* (Fauvel) det. V. ASSING 2004 (IRSNB).

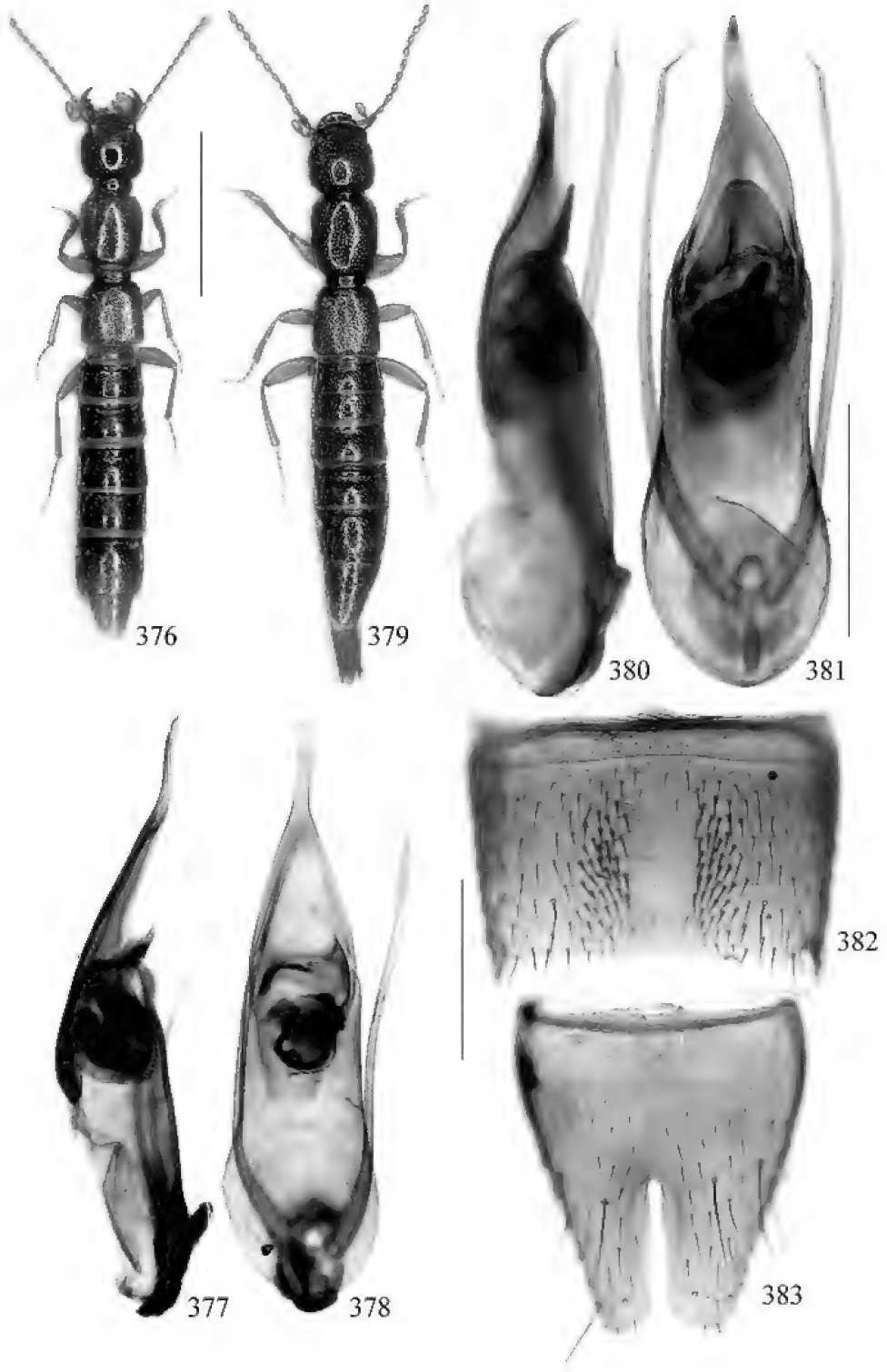
Fig. 375. Distributions of *Leptobium venustum* (Baudi) (●), *L. obesum* (Fauvel) (○), and *L. drusiacum* Coiffait (■) in the Middle East, based on revised records.

Additional material examined (total, including type: 3 exs.)

Syria – 2 exs., pass SW An Nabk ["Nebek"], 34°01N, 36°44E, 1200–1400 m, 14.IV.1978, leg. HEINZ (cKor, cAss).

Comments

The original description is based on an unspecified number of syntypes from "Damas, Djebel-Cheik (DE LA BRÛLERIE)". The only syntype found in the FAUVEL collection is here designated as the lectotype, since the other syntypes may refer to different species. As frequently observed before (ASSING 1999b), FAUVEL was in the



Figs. 376–383. *Leptobium semirufum* (Fauvel) (376–378) and *L. korbi* (Eppelsheim) (379–383). – **376, 379**. Habitus. – **377–378, 380–381**. Aedeagus in lateral and in ventral view. – **382**. Male sternite VII. – **383**. Male sternite VIII. – Scale bars: 2 mm (376, 379), 0.5 mm (377–378, 380–383).

habit of having more than one specimen from different localities on the same pin and later exchanging the specimens without removing the labels. This explains the presence of a second locality label on the pin, which clearly refers to a different specimen (and species).

Description

Measurements (in mm) and ratios (range; n = 3): HL: 0.82–0.84; HW: 0.78–0.80; PW: 0.78–0.80; PL: 0.87–0.91; EL: 0.56–0.60; TiL: 0.70–0.78; TaL: 0.68–0.70; AL: 1.26–1.30; TL: 6.0–6.6; HL/HW: 1.03–1.05; PW/HW: 0.97–1.00; PL/PW: 1.11–1.13; EL/PL: 0.64–0.66; TiL/TaL: 1.03–1.06.

Rather small species (see measurements); habitus as in Fig. 376. Coloration: head dark brown; abdominal segments III–VI and anterior $^3/_5$ of segment VII blackish; pronotum, elytra, and abdominal apex bright rufous; appendages reddish yellow.

Head weakly oblong, almost as wide as long (see ratio HL/HW); eyes large and prominent; postocular region only about 1.5 times the length of eyes in dorsal view; puncturation moderately coarse and very sparse, middle of dorsal surface almost without punctures. Antennae with antennomere III distinctly (but less than 1.5 ×) longer than II.

Pronotum approximately as wide as head and moderately oblong (see ratios PW/HW and PL/PW); lateral margins tapering posteriad in dorsal view; puncturation sparse, but less so than head.

Elytra moderately short (see ratio EL/PL) and with sparse puncturation. Hind wings reduced. Legs, especially tarsi, long and slender, metatarsus almost as long as metatibia (see ratio TaL/TiL).

Abdomen slender, slighly wider than elytra; puncturation moderately sparse; microsculpture of anterior tergites composed of dense and fine transverse meshes, on posterior tergites of isodiametric meshes; posterior margin of tergite VII without palisade fringe.

♂: sternite VII unmodified; sternite VIII with posterior incision not reaching middle; aedeagus highly distinctive, with very long, acute, and apically membranous dorsal plate (Figs. 377, 378).

Comparative notes and systematics

This species is readily distinguished from all its congeners by the highly distinctive shape of the aedeagus. From *L. drusiacum*, which is of similar size and coloration and which, too, occurs in the Anti-Lebanon, it is additionally separated by the large eyes and the sparse puncturation of the forebody.

Distribution and bionomics

Like *L. drusiacum*, this species is probably endemic to the Anti-Lebanon, where the non-type material was collected at an altitude of 1200–1400 m in April. Further bionomic data are not available.

3.44 *Leptobium korbi* (Eppelsheim, 1891) (Figs. 379–383, 402)

Dolicaon korbi; Eppelsheim (1891: 225 f.).
Leptobium korbyi; Coiffait (1982: 78, 142), misspelling.
Leptobium tronqueti; Lecoq (1986: 357 f.), **n. syn.**

Types examined

D. korbi: Lectotype ♀, here designated: Medina, Andalus., KORB / Collect. EPPELSH. / *Korbi* Eppelsh., Wien. ent. Zeit. 1891 p. 225 / Typus / Lectotypus ♀ *Dolicaon korbi* Eppelsheim, desig. V. ASSING 2003 (NHMW). – Paralectotype ♀: Andalusien / Medina 1880, Sidonia, KORB / coll. REITTER / Paratypus [sic] 1891 *Dolicaon Korbi* Eppelsheim / *Dolicaon Korbi* Eppelsheim Typ. Hi. / Paralectotypus *Dolicaon korbi* Eppelsheim desig. V. ASSING 2003 / *Leptobium korbi* (Eppelsheim) det. V. ASSING 2003 (HNHM).

L. tronqueti: Holotype ♂: Espagne, Cadiz, El Valle /N340, M. TRONQUET, 23.V.1984 / Holotype / *Leptobium tronqueti* n. sp. J. CL. LECOQ 1986 / *Leptobium korbi* (Eppelsheim), det. V. ASSING 2003 (cTro).

Additional material examined (total, including types: 36 exs.)

Spain – Andalucía: 7 exs., Tarifa (CA), III.1991, leg. POOT (cAss); 2 exs., Tarifa, II.1993, leg. POOT (cWun); 1 ex., Tarifa, III.1993, leg. POOT (cWun); 1 ex., Tarifa, XI.1995, leg. POOT (cWun); 3 exs., Tarifa, XII.1995, leg. POOT (cWun, cAss); 1 ex., Tarifa, 25.XII.1995, leg. MUILWIJK (cWun); 3 exs., Tarifa, I.1997, leg. POOT (cWun, cAss); 3 exs., Tarifa, 150–250 m, 23.IV.1991, leg. TRONQUET (cTro); 1 ex., Tarifa, I.2000, leg. POOT (cWun); 8 exs., Tahivilla (CA), flood debris, 18.XII.1995, leg. POOT (cWun, cAss); 1 ex., Sierra de Luna, 24.III.1974 (cAss); 2 exs., Bolonia [?], III.1993, leg. POOT (cWun).

Comments

The original description of *Dolicaon korbi* is based on three or four syntypes ("in 3 oder 4 Exemplaren ... aufgefunden") from Medina Sidonia (Andalucía), two of which – both females – were originally deposited in the EPPELSHEIM collection. Two female syntypes were located in the collections of the NHMW and the HNHM; the specimen from the NHMW is here designated as the lectotype.

A comparison of the types of *Leptobium korbi* and *L. tronqueti*, as well as of numerous additional specimens from Cádiz revealed that *L. tronqueti* is conspecific with and consequently a junior synonym of *L. korbi*. In the original description of *L. tronqueti*, LECOQ (1986) compares the species with *L. densiventre* (Fauvel) and *L. punctiger* (Fauvel), but does not mention *L. korbi*, probably because the male sexual characters of that species were not illustrated by COIFFAIT (1969, 1982). The type locality of *L. tronqueti* is close to that of *L. korbi*; both are in the province of Cádiz.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 35): HL: 0.84–1.03, 0.94; HW: 0.80–1.01, 0.91; PW: 0.80–1.01, 0.91; PL: 0.95–1.19, 1.07; EL: 0.62–0.84, 0.72; TiL: 0.74–0.97, 0.86; TaL: 0.60–0.76, 0.71; AL: 1.38–1.55, 1.49; TL: 5.8–7.8, 6.8; HL/HW: 1.00–1.07, 1.03; PW/HW: 0.95–1.05, 1.00; PL/PW: 1.12–1.24, 1.17; EL/PL: 0.63–0.74, 0.68; TiL/TaL: 1.14–1.27, 1.21.

Rather small species (see measurements); habitus as in Fig. 379. Coloration: whole body more or less uniformly ferrugineous to reddish brown, with the legs and antennae testaceous.

Head weakly oblong or about as wide as long (see ratio HL/HW); eyes small and weakly prominent, usually less than half – sometimes one third – the length of postocular region in dorsal view; puncturation rather coarse and dense, interstices on average about as wide as punctures, but occasionally rather sparse. Antennae moderately long; antennomere III distinctly (1.5× or nearly so) longer than antennomere II.

Pronotum moderately oblong and approximately as wide as head (see ratios PW/HW and PL/PW); lateral margins subparallel or weakly tapering caudally in dorsal view; puncturation denser and also somewhat finer than that of head.

Elytra short (see ratio EL/PL); puncturation denser and finer than that of pronotum. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation variable, usually rather dense and shallow; microsculpture composed of transverse striae and transverse meshes on anterior tergites and of a mixture of isodiametric and short transverse meshes on posterior tergites; posterior margin of tergite VII without palisade fringe.

♂: sternite VII along median line with rather extensive depression without pubescence, on either side of this depression with a cluster of numerous dark stout setae (Fig. 382); sternite VIII with posterior incision almost reaching middle (Fig. 383); aedeagus of highly derived morphology and highly distinctive, dorsal plate very long and apically acute, the apex bent in lateral view (Figs. 380, 381).

Intraspecific variation

Max/min ratios: HL: 1.22; HW: 1.26; PW: 1.26; PL: 1.26; EL: 1.37; TiL: 1.31; TaL: 1.28; AL: 1.12; HL/HW: 1.07; PW/HW: 1.10; PL/PW: 1.11; EL/PL: 1.17; TiL/TaL: 1.12. All size-related characters are subject to pronounced variation, especially the lengths of the elytra and of the legs.

Comparative notes

From all its congeners, *L. korbi* is readily distinguished by the highly characteristic morphology of the aedeagus. From other Iberian species, it is additionally separated by the uniformly ferrugineous to reddish brown coloration.

Distribution and bionomics

The distribution of *L. korbi* is confined to the extreme south of the Iberian peninsula; all the known localities are situated in the province of Cádiz (Fig. 402). The literature record from Morocco (Koch 1941) refers to *L. brevicolle* (Koch). The examined specimens were collected during the period from November through May. Some specimens were found in flood debris.

3.45 *Leptobium brevicolle* (Koch, 1937) (Figs. 384–403)

Dolicaon punctiger var. *brevicollis*; Koch (1937b: 30).
Leptobium nigrifrons; Jarrige (1952: 119), **n. syn.**
Leptobium borougensis [sic]; Coiffait (1969: 848, 868f.), **n. syn.**
Leptobium antoinei; Coiffait (1969: 885, 872f.), **n. syn.**
Leptobium punctigerum dexter; Coiffait (1969: 877f.), **n. syn.**
Leptobium testensis [sic]; Coiffait (1973b: 286f.), **n. syn.**
Leptobium ifnensis [sic]; Coiffait (1973b: 287f.), **n. syn.**
Leptobium mateui; Coiffait (1973b: 288f.), **n. syn.**
Leptobium otini; Coiffait (1981b: 134), **n. syn.**

Types examined

D. p. brevicollis: Lectotype ♀, here designated: Marruecos, Mogador [= Essaouira], XI.1905, Escalera / Typus / *D. punctiger* var. *brevicollis* Koch det. C. Koch / Lectotypus ♀ *Dolicaon punctiger* var. *brevicollis* Koch desig. V. Assing 2004 / *Leptobium brevicolle* (Koch) det. V. Assing 2004 (MCSNM). – Paralectotype ♀: Marruecos, Mogador, Mz. Escalera / Cotypus (MCSNM).

L. nigrifrons: Paratype ♂: Marrakech, Maroc, III.49, L. Kocher / Cotype / *nigrifrons* Jarr. / Muséum Paris / *Leptobium brevicolle* (Koch) det. V. Assing 2004 (MHNG).

L. borougense: Holotype ♂: Steppe d'el Boroug, 11.53 (Reymond) / Museum Paris coll. H.

COIFFAIT / Holotype / *Leptobium borougensis* Coiff. H. COIFFAIT det. 1968 / *Leptobium brevicolle* (Koch) det. V. ASSING 2004 (MNHNP).

L. antoinei: Holotype ♂: El Hajeb II, Maroc (ANTOINE) / Museum Paris coll. H. COIFFAIT / Holotype / *Leptobium antoinei* Coiff. H. COIFFAIT det. 1969 (MNHNP).

L. p. dexter: Holotype ♂: Sidi Bettache, Bouslimane [= Ben Slimane?], Marr., M. VÁZQUEZ leg. / Holotype / *Leptobium punctiger* ssp. *dexter* H. COIFFAIT det. 1968 / *Leptobium brevicolle* (Koch) det. V. ASSING 2004 (MNHNP).

L. testense: Holotype ♂: Maroc, Tizi N'Test, H. COIFFAIT / Museum Paris coll. H. COIFFAIT / Holotype / *Leptobium testensis* H. COIFFAIT det. 1973 (MNHNP).

L. ifnense: Holotype ♂: Maroc, Ifni, Taraguet, H. COIFFAIT / Museum Paris coll. H. COIFFAIT / Holotype / *Leptobium ifnensis* H. COIFFAIT det. 1973 (MNHNP). – Paratype ♀: Maroc, Env. Ifni, H. COIFFAIT / Allotype (MNHNP).

L. mateui: Holotype ♂: Maroc, Anti Atlas, H. COIFFAIT / Maroc, Anou Illig, H. COIFFAIT / Holotype / *Leptobium mateui* H. COIFFAIT det. 1973 / Muséum Paris / *Leptobium brevicolle* (Koch) det. V. ASSING 2004 (MNHNP). – Paratypes: 2 ♂♂, 1 ♀: Maroc Irhem, Anti Atlas, H. COIFFAIT / Paratype (MNHNP); 1 ♀: Aoulouz, Pr. Agadir, H. COIFFAIT / Allotype (MNHNP); 1 ♂: Ifni, Tamquest, H. COIFFAIT / Paratype (MNHNP).

L. otini: Holotype ♂: Settat, XII.31, Maroc (ANTOINE) / Muséum Paris Coll. J. JARRIGE / Type / *Otini* / gr. *nigricolle* / *Leptobium otini* H. Coiffait 1979 / Muséum Paris / *Leptobium brevicolle* (Koch) det. V. ASSING 2004 (MNHNP).

Additional material examined (total, including types: 44 exs.)

Morocco – 4 exs., Mzoudia, 3.III.1935, leg. KOCH (MCSNM, cAss); 4 exs., Marrakech, 25.II.1935, leg. KOCH (MCSNM, NHMB, cAss); 2 exs., Marrakech, III.1933, leg. FREY (NHMB); 1 ex., Marrakech, I.1907, leg. ESCALERA (MCSNM); 1 ex., Essaouira, XII.1906, leg. ESCALERA (MCSNM); 6 exs., Skour des Rehamna, 2.III.1980, leg. FÜLSCHER & MEYBOHM (MHNG, cAss, cWun); 1 ex., same locality, I.1937, leg. ANTOINE (MHNG); 2 exs., Anti-Atlas, Col-du-Kerdous, 17.III.1982, leg. FÜLSCHER & MEYBOHM (MHNG, cAss); 1 ex., Anti-Atlas, Tizi Mlil, 1400 m, 16.III.1982, leg. FÜLSCHER & MEYBOHM (cAss); 5 exs., plateau N Oued Zem, 900 m, 6.XII.1987, leg. HEINZ (cKor, cAss). – Locality and/or identification doubtful: 1 ♀, Tazla (?), 28.IV.1930, leg. EICHLER (NHMW); 1 ex., Sehal [? = Sehal el Oussera, Akba, 33°28N, 3°13W], 20.XII.1972, leg. TAVAKILIAN (cTro).

Comments

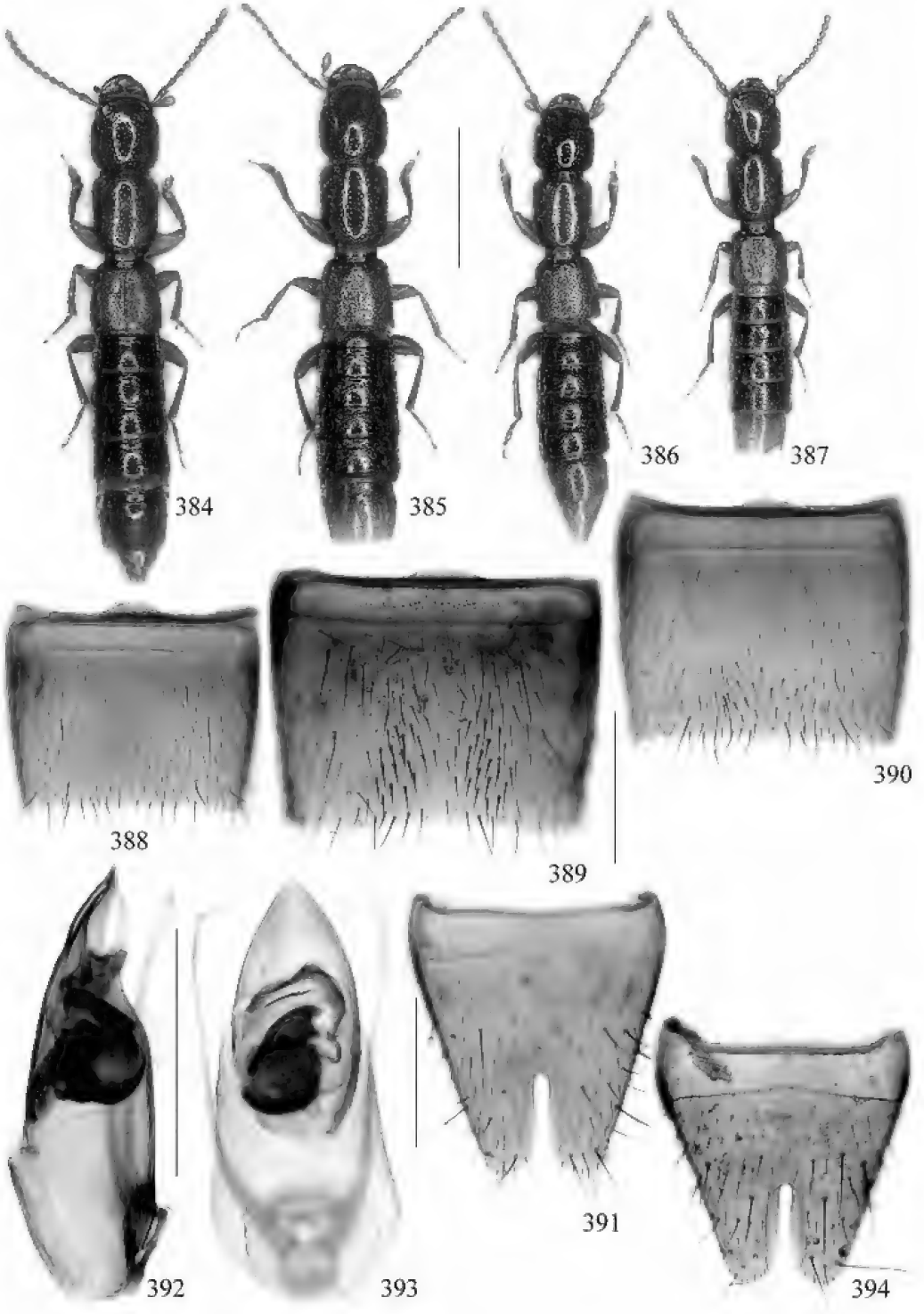
KOCH (1937b) based his description of the variety *brevicollis* on two female syntypes from Mogador (= Essaouira). The specimen in better condition is here designated as the lectotype.

A comparative study of the types listed above and the additional material indicated below revealed various differences between populations from different localities, especially in size (e. g. *L. ifnense*, *L. nigrifrons*, and *L. borougense*), coloration (e. g. *L. antoinei*, *L. testense*, *L. borougense*), and puncturation (*L. mateui*), but these differences are linked by all possible transitional conditions (Fig. 403). No significant differences were found in the male sexual characters, which suggests that all the examined populations are conspecific; hence the synonymies proposed above.

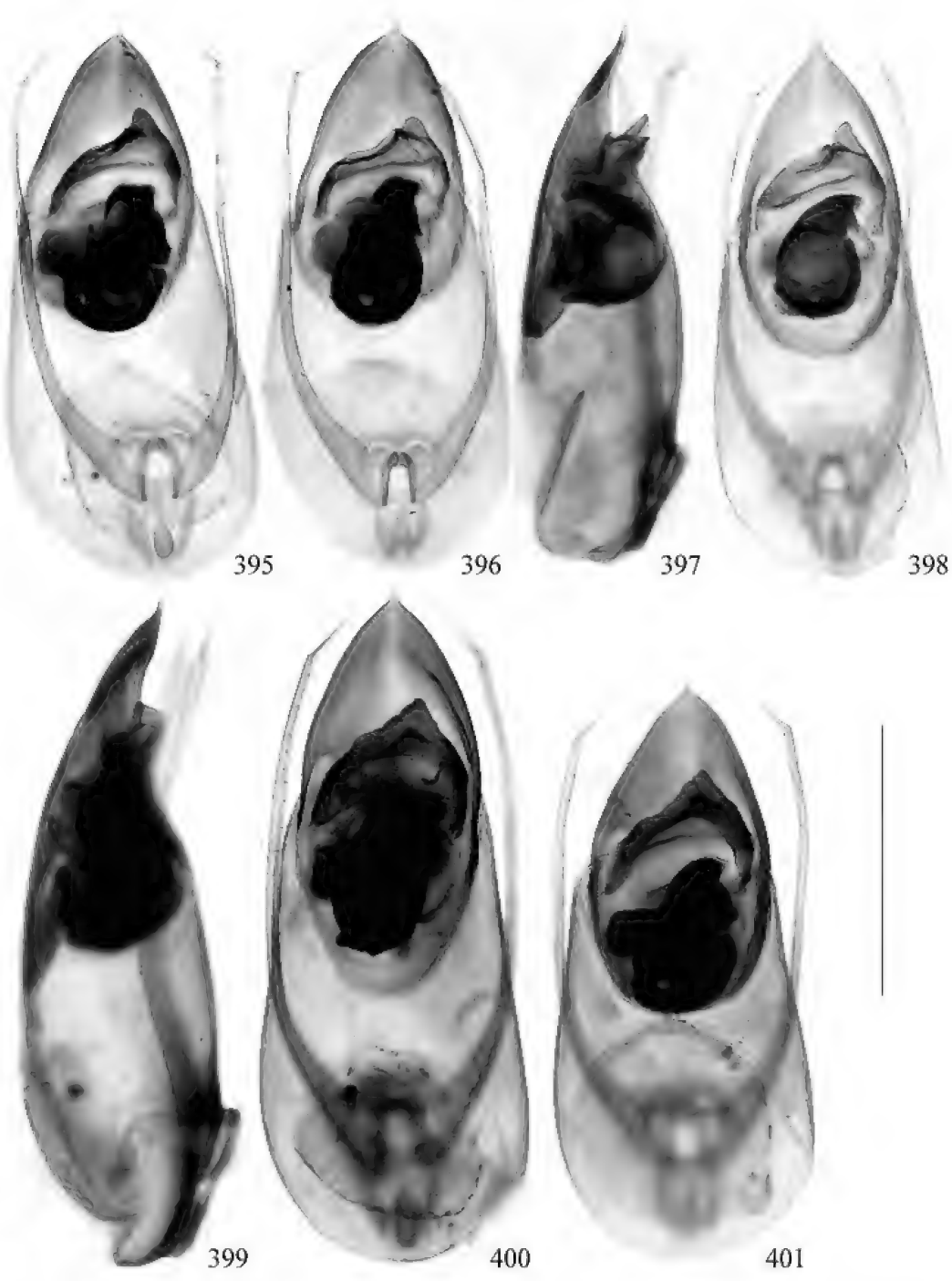
Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 42): HL: 0.74–1.13, 0.95; HW: 0.70–1.03, 0.87; PW: 0.68–0.98, 0.84; PL: 0.76–1.15, 0.99; EL: 0.52–0.76, 0.65; TiL: 0.60–0.89, 0.74; TaL: 0.52–0.76, 0.65; AL: 0.87–1.30, 1.08; TL: 5.0–7.5, 6.2; HL/HW: 1.03–1.16, 1.09; PW/HW: 0.92–1.02, 0.97; PL/PW: 1.10–1.23, 1.17; EL/PL: 0.57–0.76, 0.66; TiL/TaL: 1.03–1.23, 1.14.

Moderately small species, but size very variable (see measurements); habitus as in Figs. 384–387. Coloration: pronotum, elytra, and abdominal apex rufotestaceous to reddish brown; head of variable coloration, of similar colour as pronotum, weakly



Figs. 384–394. *Leptobium brevicolle* (Koch) (384, 390–391: Mzoudia; 385, 389, 394: holotype of *L. ifnense*; 386: holotype of *L. antoinei*; 387–388, 392–393: holotype of *L. borougense*). – **384–387**. Habitus. – **388–390**. Male sternite VII. – **391**, **394**. Male sternite VIII. – **392–393**. Aedeagus in lateral and in ventral view. – Scale bars: 2 mm (384–387), 0.5 mm (388–394).



Figs. 395–401. *Leptobium brevicolle* (Koch), aedeagus. – **395**. Mzoudia. – **396**. Marrakech. – **397–398**. Holotype of *L. antoinei*. – **399–400**. Holotype of *L. ifnense*. – **401**. Rehamna. – Scale bar: 0.5 mm.

infuscate anteriorly, or completely black; abdominal segments III–VI black; segment VII anteriorly more or less extensively and more or less distinctly infuscate, sometimes completely rufous; legs and antennae reddish yellow.

Head weakly to moderately oblong (see ratio HL/HW); eyes relatively small, about half the length of postocular region in dorsal view; puncturation very variable, moderately coarse and dense to finer and rather sparse, interstices on average about 1.5–3.5 times as wide as punctures. Antennae moderately long; antennomere III usually slightly longer than antennomere II.

Pronotum moderately to distinctly oblong and slightly narrower than or approximately as wide as head (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation similar to that of head, but usually slightly denser.

Elytra short (see ratio EL/PL); puncturation variable, usually somewhat denser and coarser than that of pronotum. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation relatively sparse and fine; microsculpture composed of transverse striae and transverse meshes; posterior margin of tergite VII without palisade fringe.

♂: sternite VII not or only very weakly modified, in posterior median area occasionally with rather extensive, but weakly pronounced clusters of weakly modified setae (Figs. 388–390); sternite VIII with posterior incision very short, little more than $^1/_3$ the length of sternite (Figs. 391, 394); aedeagus with almost symmetrical dorsal plate and with asymmetrical ventral process (Figs. 392, 393, 395–401).

Intraspecific variation

Max/min ratios: HL: 1.53; HW: 1.47; PW: 1.44; PL: 1.51; EL: 1.48; TiL: 1.48; TaL: 1.48; AL: 1.50; HL/HW: 1.12; PW/HW: 1.12; PL/PW: 1.11; EL/PL: 1.34; TiL/TaL: 1.24.

While the shape of the aedeagus is moderately variable (Figs. 392, 393, 395–401), external characters, especially size and coloration, are subject to enormous intraspecific variation. The extreme conditions are, however, linked by transitions (Fig. 403). Puncturation was found to be highly variable even in material collected in the same locality.

Comparative notes

Leptobium brevicolle is distinguished from other North African species of the genus by the morphology of the aedeagus, by the (almost) unmodified male sternite VII, by the short posterior incision of the male sternite VIII, by the relatively small size, and by the coloration.

Similarities in the male sexual characters (small aedeagus of similar general morphology, the weakly modified male sternite VII, and the short posterior incision of the male sternite VIII) suggest that *L. brevicolle* and *L. nigricolle* are closely related.

Distribution and bionomics

The known distribution of this species is confined to the central and southwestern parts of Morocco (Fig. 402). The specimens with specified dates on the labels were collected during the period from November through April, with a maximum in March. Apparently, most of the material was found at lower elevations. Further bionomic data are not available.

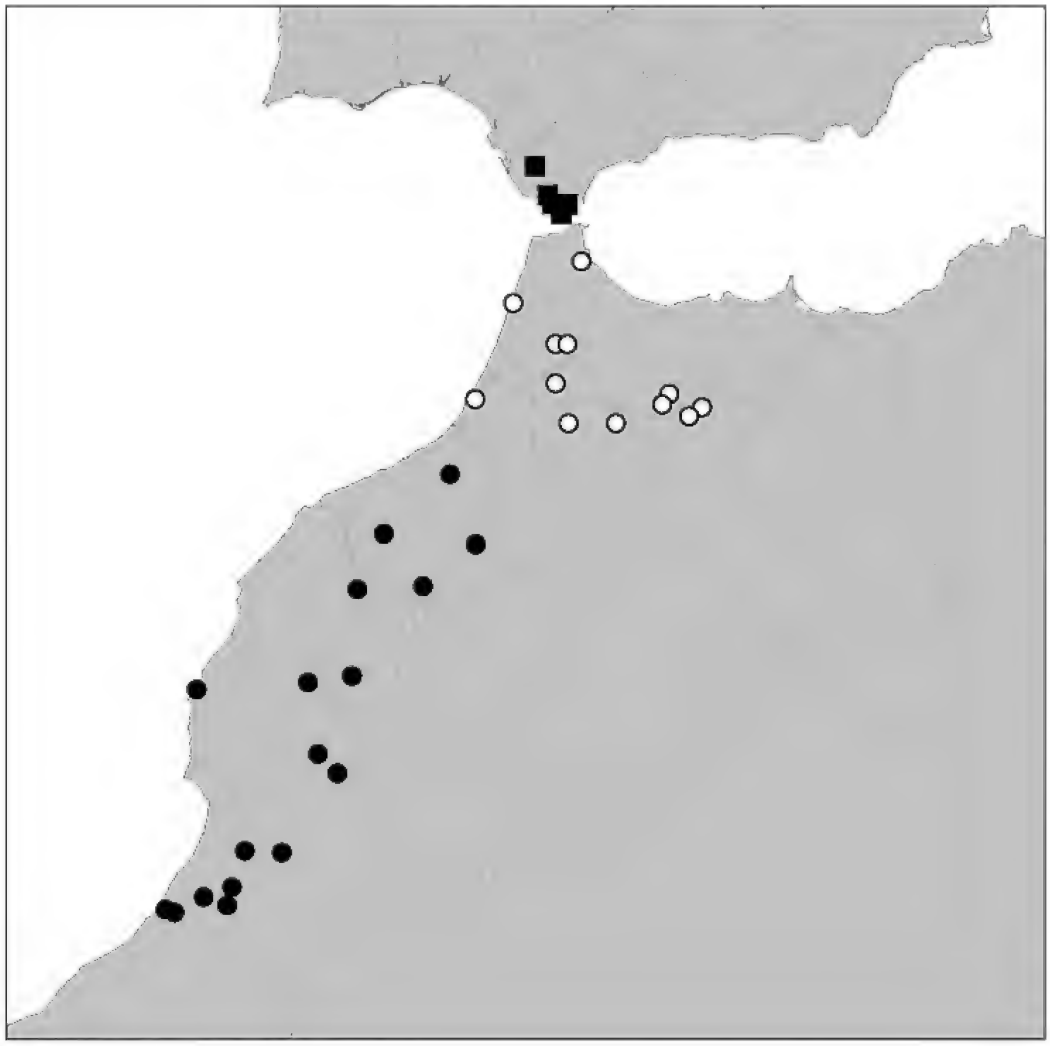


Fig. 402. Distributions of *Leptobium korbi* (Eppelsheim) (■), *L. brevicolle* (Koch) (●), and *L. punctigerum* (Fauvel) (○) in southern Spain and Morocco, based on revised records.

3.46 *Leptobium punctigerum* (Fauvel, 1886) (Figs. 402, 404–411)

Dolicaon punctiger; FAUVEL (1886: 34.).
Leptobium kocheri; JARRIGE (1952: 120f.), **n. syn.**
Leptobium punctiger [sic] *medium*; COIFFAIT (1969: 849, 876f.), **n. syn.**
Leptobium tazekensis [sic]; COIFFAIT (1969: 848, 870), **n. syn.**
Leptobium rifensis [sic]; COIFFAIT (1969: 850, 873f.), **n. syn.**
Leptobium peyerimhoffi; COIFFAIT (1969: 846, 877f.), **n. syn.**

Types examined

D. punctiger: Lectotype ♂, here designated: Larache 1 / *punctiger* Fvl. / Ex-Typis / I.R.Sc.N.B. 17.479 Coll. et det. A. FAUVEL / Lectotypus ♂ *Dolicaon punctiger* Fauvel desig. V. ASSING 2004 / *Leptobium punctigerum* (Fauvel) det. V. ASSING 2004 (IRSNB). – Paralectotype ♀: same data (IRSNB).

L. kocheri: Lectotype ♂, here designated: Détritus d'inondation, Sebous, 1.51 / Type / *Kocheri* Jarr. / Muséum Paris / Lectotypus ♂ *Leptobium kocheri* Jarrige desig. V. ASSING 2004 / *Leptobium punctigerum* (Fauvel) det. V. ASSING 2004 (MNHNP).

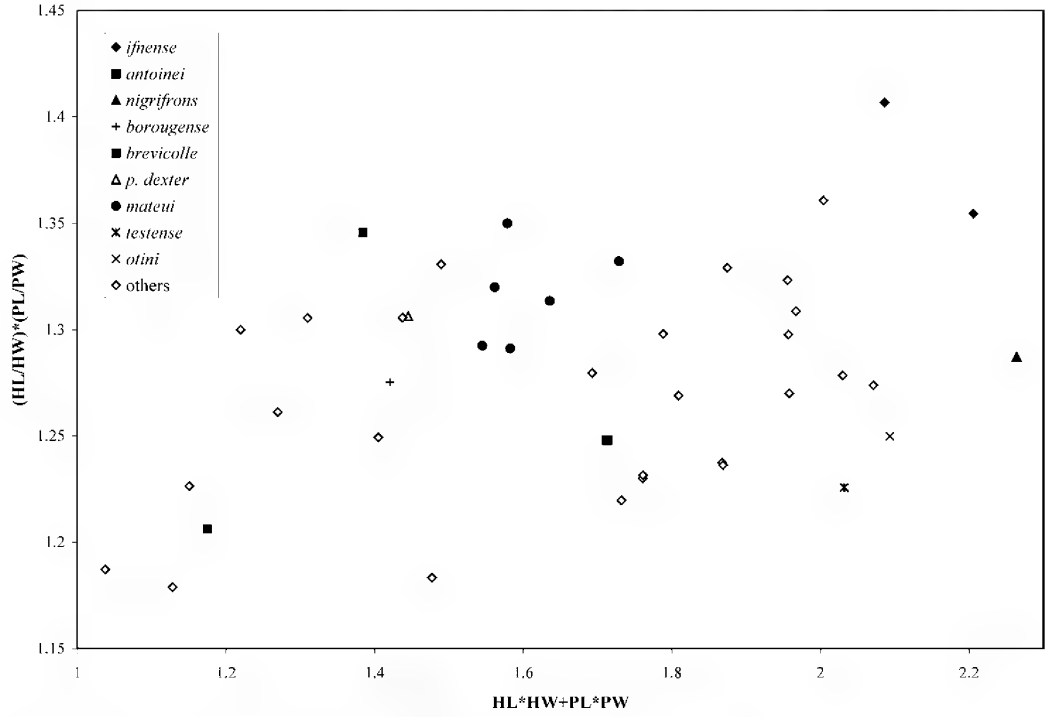


Fig. 403. *Leptobium brevicolle* (Koch), body shape. "Slenderness" of head and pronotum in relation to body size of types (*L. ifnense*, *L. antoinei*, etc.) and of non-type material ("others") (see chapter 2).

L. p. medium: Holotype ♂: Maroc, 2.48, Ouezzane, Zoumi [?], KOCHER / Holotype / *L. punctiger* ssp. *medius* Coiff., H. COIFFAIT det. 1968 / Muséum Paris / *Leptobium punctigerum* (Fauvel) det. V. ASSING 2004 (MNHNP). – Paratypes: 29 exs.: Maroc, 12.3.68, Env. Ouezzane, H. COIFFAIT / Paratype / Muséum Paris (MNHNP); 4 exs.: Maroc, 18.3.68, Moulay Idriss, H. COIFFAIT (MNHNP).

L. tazekense: Holotype ♂: Maroc, Dj. Tazeka / Holotype / *Leptobium tazekensis* H. COIFFAIT det. 1973 / *Leptobium punctigerum* (Koch) det. V. ASSING 2004 (MNHNP). – Paratype ♀: Maroc, Env. Ifni, H. COIFFAIT / Allotype (MNHNP).

L. rifense: Holotype ♂: Maroc Tetouan / Holotype / *Leptobium rifensis* Coiff., H. COIFFAIT det. 1968 / Muséum Paris / *Leptobium punctigerum* (Fauvel) det. V. ASSING 2004 (MNHNP).

L. peyerimhoffi: Holotype ♂: Fès St. 54, 1.2.39, OTIN / Holotype / *Leptobium peyerimhoffi* Coiff., H. COIFFAIT det. 1969 / Muséum Paris / *Leptobium punctigerum* (Fauvel) det. V. ASSING 2004 (MNHNP).

Additional material examined (total, including types: 66 exs.)

Morocco – 1 ex., Larache (IRSNB); 1 ex., Tétouan (IRSNB); 1 ex., 30 km NW Taza, ca. 5 km S Sebt-des-Beni-Frassen, 34°20N, 4°22W, fallow land and fields, under stones, 6.II.2003, leg. WRASE (cSch); 6 exs., same data, but 22.II.2004, leg. ASSMANN, WRASE (cAss, cSch); 5 exs., 40 km NW Taza, 3 km NW Sebt-des-Beni-Frassen, 4.II.1998, leg. WRASE (cSch, cAss); 5 exs., Taza, 17 km SE Souk-El-Haddes-Oulad-Zbair, ca. 30 km S Tissa, 34°14N, 4°27W, 450 m, field edges (loam, clay), under stones, 25.II.2004, leg. WRASE (cAss); 1 ex., NE Sidi Qacem, Khenichet [34°26N, 5°40W], 20.II.1999, leg. WRASE (cSch); 1 ♀, Ouezzane, 11.III.1933 (NHMB); 2 ♀♀, Ouezzane, 12.III.1968, leg. COIFFAIT (NHMW, cAss); 1 ex., Taza, leg. BREIT (NHMW).

Comments

The description of *Dolicaon punctiger* is based on two syntypes collected by QUEDENFELDT in Larache (FAUVEL 1886). In the FAUVEL collection, two specimens were found which are probably identical with these syntypes, although one of them is a male. (According to FAUVEL 1886, both syntypes are females.) The male syntype is here designated as the lectotype.

The original description of *L. kocheri* is based on an unspecified number of (male) syntypes. The single syntype in the JARRIGE collection is here designated as the lectotype to secure the present interpretation and synonymy.

According to COIFFAIT (1969), *L. punctigerum medium* is distinguished from *L. punctigerum* by the denser and coarser puncturation and by the shape of the aedeagus. However, a comparison with the types and additional material of *L. punctigerum* revealed that these differences are not constant, so that the hypothesis that the populations from Ouezzane and Moulay Idriss represent a distinct subspecies cannot be confirmed. The aedeagus of the holotype of *L. p. medium* has a ventral process with distinct dorsal projections (Fig. 407), which, however, are missing in the numerous paratypes collected in the immediate vicinity of the type locality. Until (or unless) more material with a similar aedeagus becomes available, these differences should be regarded as individual aberrations.

The holotype of *L. rifense* Coiffait is clearly conspecific with the types of *L. punctigerum*. In the original description of *L. rifense*, which is based on a single holotype, the species is compared with *L. subglaciale*, but *L. punctigerum* is not even mentioned.

The aedeagus of the holotype of *L. peyerimhoffi* is characterised by small size and a rather long ventral process (Fig. 408). However, this extent of intraspecific variation, even regarding the shape of the aedeagus, is not unusual in the genus. Since no additional characters were found suggesting that the specimen should represent a distinct species and, furthermore, since a distribution confined to the environs of Fès is biogeographically not plausible, *L. peyerimhoffi* is here synonymised with *L. punctigerum*.

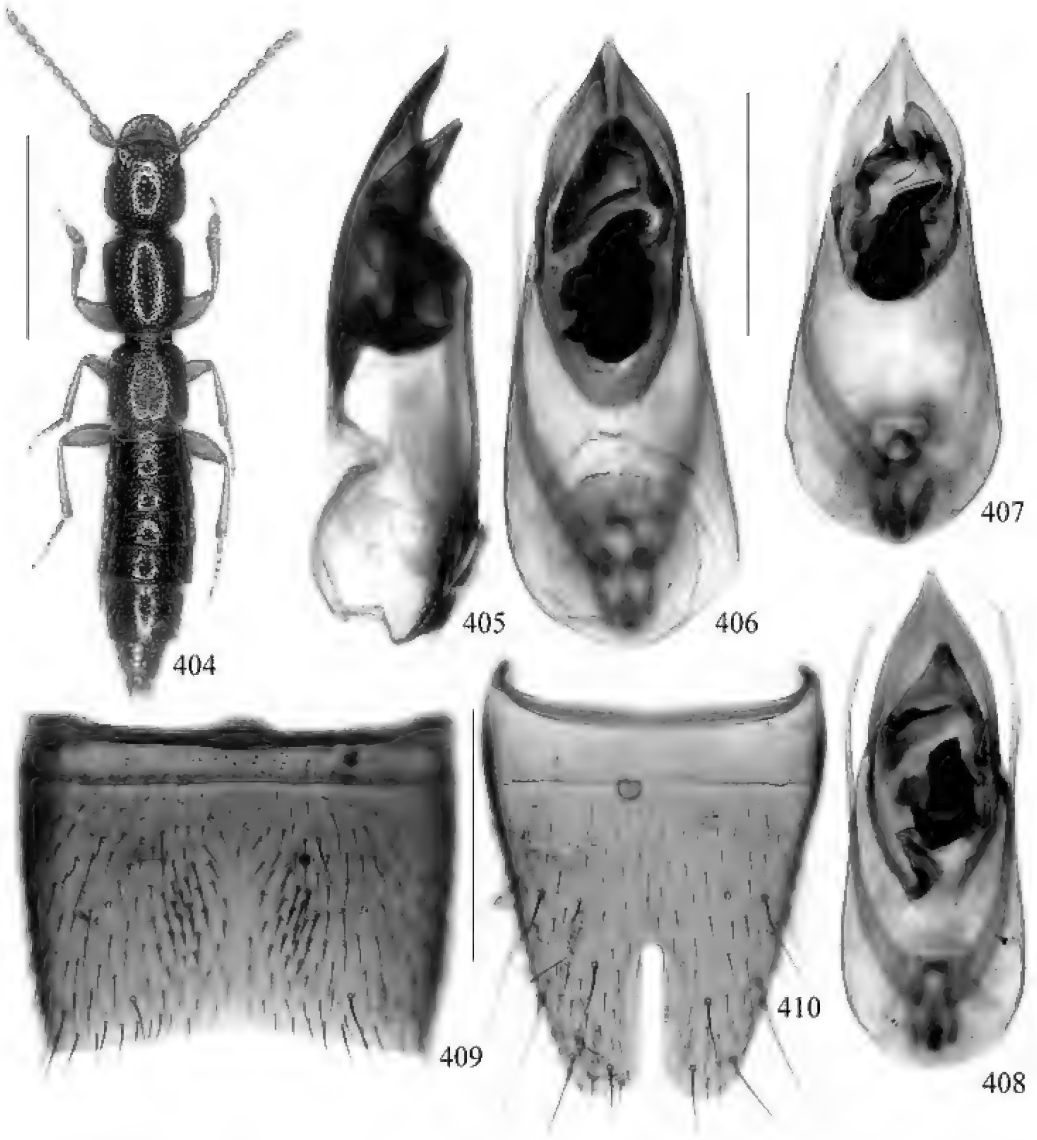
Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 25): HL: 0.72–0.95, 0.86; HW: 0.65–0.87, 0.79; PW: 0.62–0.87, 0.78; PL: 0.73–1.03, 0.92; EL: 0.47–0.70, 0.61; TiL: 0.58–0.80, 0.71; TaL: 0.49–0.72, 0.59; AL: 0.99–1.26, 1.17; TL: 4.8–6.8, 5.6; HL/HW: 1.05–1.14, 1.09; PW/HW: 0.95–1.03, 0.99; PL/PW: 1.12–1.23, 1.18; EL/PL: 0.63–0.71, 0.66; TiL/TaL: 1.11–1.23, 1.20.

Species of relatively small size (see measurements) and light coloration; habitus as in Fig. 404. Forebody and abdominal apex reddish brown; abdominal segments III–VI and usually also anterior part of segment VII blackish; legs and antennae yellowish brown.

Head moderately oblong (see ratio HL/HW); eyes of somewhat variable size, usually about half the length of postocular region in dorsal view; puncturation moderately sparse and coarse, interstices on average about 1–2 times as wide as punctures; microsculpture absent. Antennae with antennomere III longer (but less than 1.5 ×) than antennomere II.

Pronotum moderately oblong and approximately as wide as head or slightly narrower (see ratios PW/HW and PL/PW); lateral margins weakly tapering caudad in dorsal view; puncturation similar to that of head, but denser; microsculpture absent.



Figs. 404–410. *Leptobium punctigerum* (Fauvel) (407: holotype of *L. p. medium*; 408: holotype of *L. peyerimhoffi*). – **404.** Habitus. – **405–408.** Aedeagus in lateral and in ventral view. – **409.** Male sternite VII. – **410.** Male sternite VIII. – Scale bars: 2 mm (404), 0.5 mm (405–410).

Elytra short (see ratio EL/PL); puncturation much shallower and less well-defined than that of pronotum. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation comparatively dense; microsculpture composed predominantly of transverse meshes; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with weakly and broadly concave posterior margin, in median area with two rather extensive, but weakly defined clusters of dark setae (Fig. 409); sternite VIII with posterior incision not reaching middle (Fig. 410); dorsal plate of aedeagus apically more or less abruptly narrowed, with acute tip, and dorsally with pair of weakly pronounced carinae; ventral process weakly asymmetric and weakly transverse (Figs. 405–408).

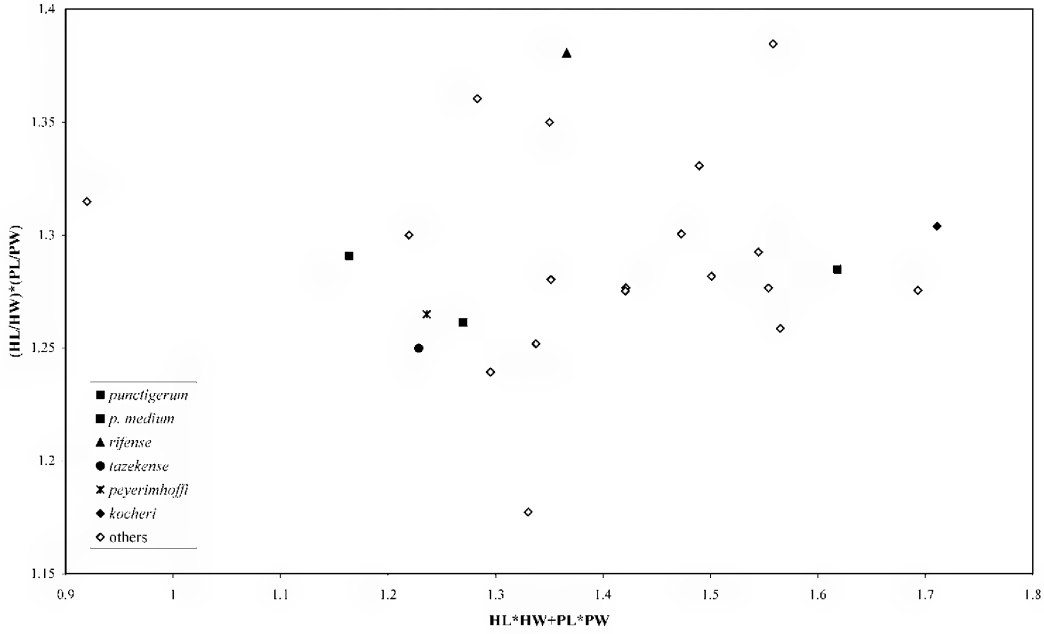


Fig. 411. *Leptobium punctigerum* (Fauvel), body shape. "Slenderness" of head and pronotum in relation to body size of types (*L. punctigerum*, *L. p. medium*, etc.) and of non-type material ("others") (see chapter 2).

Intraspecific variation

Max/min ratios: HL: 1.31; HW: 1.33; PW: 1.40; PL: 1.41; EL: 1.48; TiL: 1.39; TaL: 1.46; AL: 1.26; HL/HW: 1.08; PW/HW: 1.09; PL/PW: 1.10; EL/PL: 1.13; TiL/TaL: 1.19.

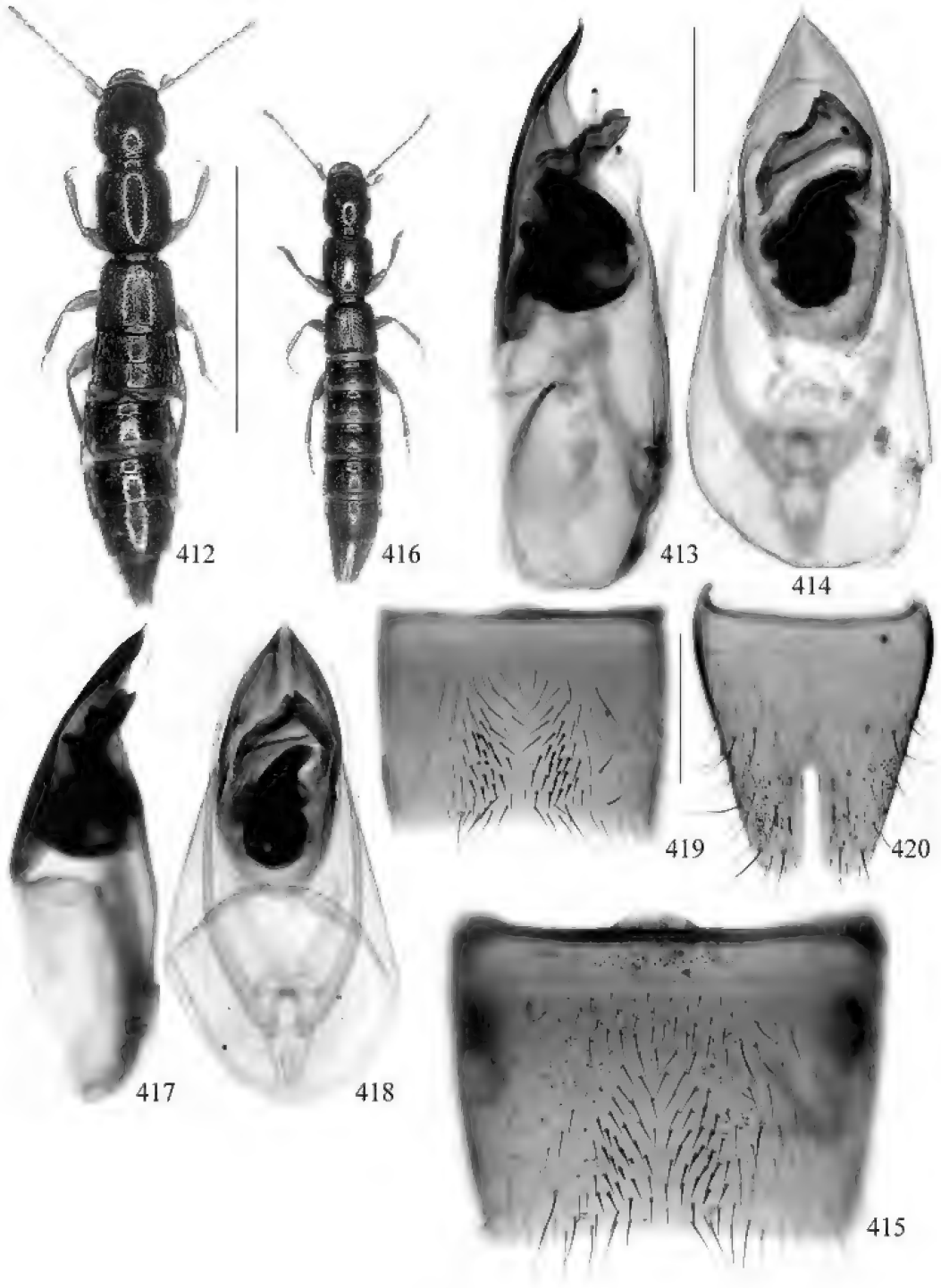
Like the preceding species, *L. punctigerum* is highly variable in all the size-related characters examined. The variability was observed both between and within populations. Even the two type specimens of *L. punctigerum* distinctly differ in size (Fig. 411). Considerable intraspecific variation was also observed with respect to the shape of the ventral process of the aedeagus (Figs. 405–408).

Comparative notes

From *L. brevicolle*, the only other species of similar coloration occurring in Morocco, the species is distinguished by more pronounced and denser average punctuation, by smaller eyes, a distinctly modified male sternite VII, by a more slender dorsal plate of the aedeagus, and by a less transverse and less distinctly asymmetric ventral process of the aedeagus.

Distribution and bionomics

The known distribution of *L. punctigerum* is confined to northwestern Morocco (Fig. 402). The specimens with specified dates on the labels were collected during the period from January through March, with a maximum in February and March. At least some of the material was found in arable land and fallows by turning stones, apparently at lower elevations. Further bionomic data are not available.



Figs. 412–420. *Leptobium festae* (Gridelli), holotype (412–415) and *L. silvestrii* (Gridelli), holotype (416–420). – **412**, **416**. Habitus. – **413–414**, **417–418**. Aedeagus in lateral and in ventral view. – **415**, **419**. Male sternite VII. – **420**. Male sternite VIII. – Scale bars: 5 mm (412, 416), 0.5 mm (413–415, 417–420).

3.47 *Leptobium festae* (Gridelli, 1924) (Figs. 412–415)

Dolicaon festae; GRIDELLI (1924: 23f.).

Type examined

Holotype ♂: Cirenaica, Um Erzem, II.1922, Dr. E. FESTA / Typus / *Festae* m. det. E. GRIDELLI / Collez. A. DODERO / Holotypus *Dolicaon festae* Gridelli V. GUSAROV rev. 1993 / *Leptobium festae* (Grid.) V. I. GUSAROV det. 1993 (MCSNG).

Description

Measurements (in mm) and ratios (holotype): HL: 1.38; HW: 1.34; PW: 1.36; PL: 1.52; EL: 0.95; TiL: 1.13; TaL: 0.93; AL: 1.73; TL: 8.8; HL/HW: 1.03; PW/HW: 1.02; PL/PW: 1.12; EL/PL: 0.62; TiL/TaL: 1.22.

Large species (see measurements); habitus as in Fig. 412. Coloration: whole body uniformly castaneous, with the antennae and the abdominal apex rufous and the legs yellowish brown.

Head weakly oblong (see ratio HL/HW); eyes large, distinctly more than half the length of postocular region in dorsal view; puncturation moderately coarse and sparse, interstices on average about 2–3 times as wide as punctures. Antennae with antennomere III distinctly longer than II.

Pronotum moderately oblong and about as wide as head (see ratios PW/HW and PL/PW); lateral margins subparallel in dorsal view; puncturation similar to that of head.

Elytra very short (see ratio EL/PL); puncturation fine, shallow, and rather sparse. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation fine and of similar density as that of elytra; microsculpture predominantly composed of transverse striae; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with median impression, on either side of this impression with cluster of modified dark setae, posterior margin broadly and weakly concave (Fig. 415); sternite VIII with posterior incision almost reaching middle; dorsal plate of aedeagus symmetrical, apically acutely narrowed, and dorsally with pair of weakly pronounced carinae; ventral process distinctly asymmetrical and apically bidentate (Figs. 413, 414).

Comparative notes

The species is distinguished from other congeners occurring in the Mediterranean by the combination of large size and uniformly castaneous coloration alone.

Distribution and bionomics

Leptobium festae has become known only from the type locality in Cyrenaica, Libya. Bionomic data are not available.

3.48 *Leptobium silvestrii* (Gridelli, 1926) (Figs. 416–420)

Dolicaon silvestrii; GRIDELLI (1926: 146ff.).

Type examined

Holotype ♂: El Merg [= Al Marj], Cirenaica, 9.IV.1922, F. SILVESTRI / Typus / *Silvestrii* m. det. E. GRIDELLI / Collez. A. DODERO / Holotypus *Dolicaon silvestrii* Gridelli V. GUSAROV rev. 1993 / *Leptobium silvestrii* (Grid.) V. I. GUSAROV det. 1993 / *Leptobium festae* (Gridelli) det. V. ASSING 2004 (MCSNG).

Description

Measurements (in mm) and ratios (holotype): HL: 1.01; HW: 0.91; PW: 0.95; PL: 1.11; EL: 0.70; TiL: 0.80; TaL: 0.70; AL: 1.40; TL: 7.6; HL/HW: 1.11; PW/HW: 1.05; PL/PW: 1.17; EL/PL: 0.63; TiL/TaL: 1.15.

Species of intermediate size (see measurements); habitus as in Fig. 416. Coloration: whole body uniformly rufous, with the antennae and the legs yellowish red.

Head moderately oblong (see ratio HL/HW); eyes moderately large, slightly more than half the length of postocular region in dorsal view; puncturation moderately coarse and sparse, interstices on average about 2–3 times as wide as punctures. Antennae with antennomere III distinctly longer than II.

Pronotum moderately oblong and about as wide as head (see ratios PW/HW and PL/PW); lateral margins weakly tapering posteriad in dorsal view; puncturation similar to that of head, but slightly denser.

Elytra very short (see ratio EL/PL); puncturation fine, shallow, and ill-defined. Hind wings reduced.

Abdomen slightly wider than elytra; puncturation fine and of similar density as that of elytra; microsculpture predominantly composed of transverse striae; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with median impression, on either side of this impression with cluster of modified dark setae, posterior margin broadly and weakly concave (Fig. 419); sternite VIII with posterior incision almost reaching middle (Fig. 420); dorsal plate of aedeagus symmetrical, apically acutely narrowed, and dorsally with pair of weakly pronounced carinae; ventral process distinctly asymmetrical and apically bidentate (Figs. 417, 418).

Comparative notes

From *L. venustum*, which is distributed in the Middle East, the species is separated especially by the lighter coloration of the abdomen and the distinctly modified male sternite VII. From the highly similar *L. festae* (see above), *L. silvestrii* is distinguished only by its smaller body, the slightly lighter coloration, and the slightly smaller eyes. There is some doubt that the holotypes of *L. festae* and *L. silvestrii* really represent distinct species, particularly since the male sexual characters are practically identical, but this can be clarified only when more material becomes available.

Distribution and bionomics

Like the preceding species, *Leptobium silvestrii* has become known only from the type locality in Cyrenaica, Libya. Bionomic data are not available.

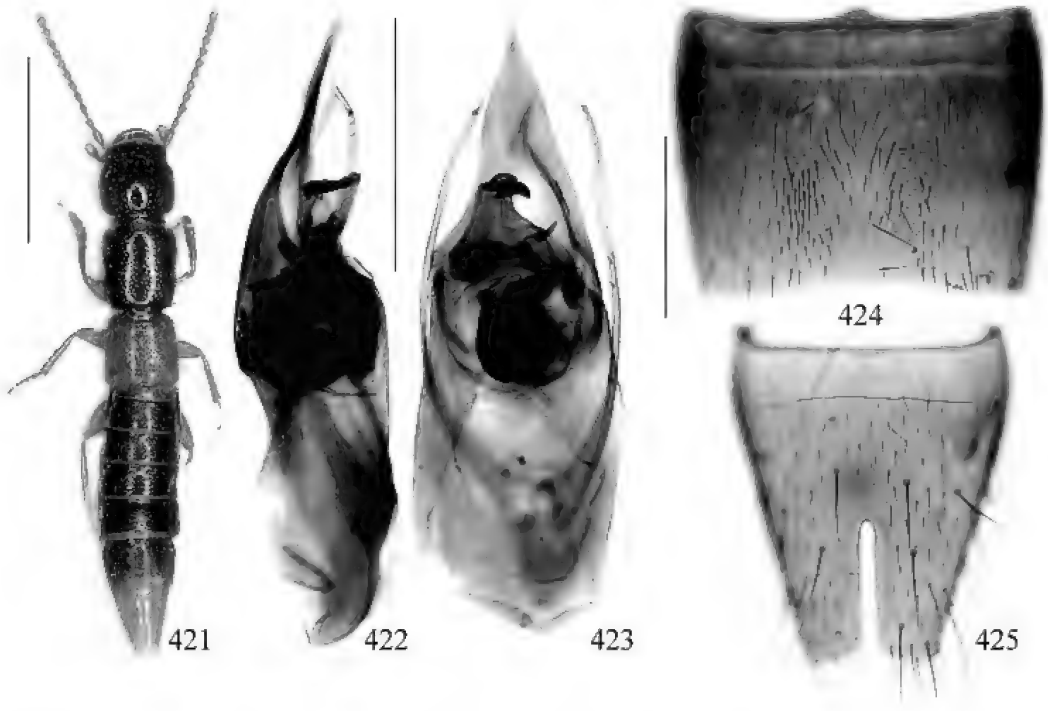
3.49 *Leptobium unciferum* Coiffait, 1969 (Figs. 421–425, 462)

Leptobium unciferum; Coiffait (1969: 860, 864 ff.).
Leptobium macrocephalum; Coiffait (1969: 858, 863 f.), **n. syn.**

Types examined

L. unciferum: Holotype ♂ [locality given in Cyrillic, according to original description]: "Kourgan-Tioude [recte: Kurgan-Tjube], Gandjina, Tadjikistan", 3.4.64 / Holotype / Museum Paris coll. H. Coiffait / *Leptobium unciferum* Coiff. H. Coiffait det. 1969 (MNHNP).

L. macrocephalum: Holotype ♂: Dushanbe, Adiri, Tgshk [transliterated from Cyrillic], 16.4.68 / Type / *Leptobium macrocephalum* Coiff. H. Coiffait det. 1968 / *Leptobium unciferum* Coiffait det. V. Assing 2004 (cKal).



Figs. 421–425. *Leptobium unciferum* Coiffait. – **421**. Habitus. – **422–423**. Aedeagus in lateral and in ventral view. – **424**. Male sternite VII. – **425**. Male sternite VIII. – Scale bars: 2 mm (421), 0.5 mm (422–425).

Additional material examined (total, including types: 7 exs.)

Tajikistan – 5 exs., Southern slopes of Gissar [= Hissar] range, Karatag [68°20E, 38°37N], 31.III.1983, leg. VERESHCHAGINA (ZIN, cAss).

Comments

The holotypes of *L. unciferum* and *L. macrocephalum* are doubtlessly conspecific, so that both names, which were published in the same article, are synonymous. *Leptobium unciferum* is here attributed seniority.

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 7): HL: 0.82–0.97, 0.90; HW: 0.84–0.93, 0.89; PW: 0.80–0.91, 0.87; PL: 0.91–1.03, 0.98; EL: 0.54–0.66, 0.60; TiL: 0.72–0.78, 0.75; TaL: 0.68–0.76, 0.71; AL: 1.24–1.26, 1.25; TL: 5.3–7.1, 5.8; HL/HW: 0.98–1.04, 1.01; PW/HW: 0.95–1.00, 0.98; PL/PW: 1.10–1.15, 1.12; EL/PL: 0.58–0.66, 0.61; TiL/TaL: 1.03–1.06, 1.05.

Relatively small species (see measurements); habitus as in Fig. 421. Coloration: head and pronotum dark brown; elytra, abdominal segments VIII–X, posterior margin of segment VII, and appendages bright reddish yellow; abdominal segments III–VII (except for posterior margin of VII) black.

Head approximately as wide as long (see ratio HL/HW); eyes moderately large, approximately half the length of postocular region in dorsal view; puncturation relatively fine and sparse, interstices on average 2–3 times as wide as punctures, with some interspersed micropunctures. Antennae slender, antennomere III approximately 1.5 times as long as II, VI distinctly oblong, and X about as wide as long.

Pronotum as wide as head and moderately oblong (see ratios PW/HW and PL/PW); lateral margins very weakly tapering caudad in dorsal view.

Elytra short (see ratio EL/PL); puncturation fine, shallow, and rather ill-defined; pubescence suberect. Hind wings reduced. Tarsi relatively long, metatarsus only slightly shorter than metatibia (see ratio TaL/TiL).

Abdomen slightly wider than elytra; microsculpture shallow, composed of dense and fine transverse meshes and striae; posterior margin of tergite VII without palisade fringe.

♂: sternite VII in posterior median area without pubescence, on either side of this area with extensive, but inconspicuous cluster of sparse and weakly modified setae (Fig. 424); sternite VIII with posterior incision almost reaching middle (Fig. 425); aedeagus strongly asymmetrical, the asymmetry involving also the dorsal plate and the basal portion; ventral process dorsally with distinct hook-shaped apical process (Figs. 422, 423).

Comparative notes and systematics

Leptobium unciferum is distinguished from its congeners especially by the highly derived morphology of the aedeagus, from most congeners also by the relatively large head and the coloration.

This and the following species, all from Middle Asia, apparently form a monophyletic group, as is suggested by presumably synapomorphic external characters (relatively large head, sparse puncturation of the forebody, very short elytra) and especially the highly derived morphology of the aedeagus – shared by all species except *L. hauseri* – with a long dorsal plate, often with distinct ventral carinae.

Distribution and bionomics

The species has become known from three localities in Tajikistan (Fig. 462). The examined specimens were collected in March and April. Additional bionomic data are not available.

3.50 *Leptobium zeravshanicum* Boháč, 1988 (Figs. 426–430, 462)

Leptobium zeravshanicum; Boháč (1988: 435 ff.).

Types examined

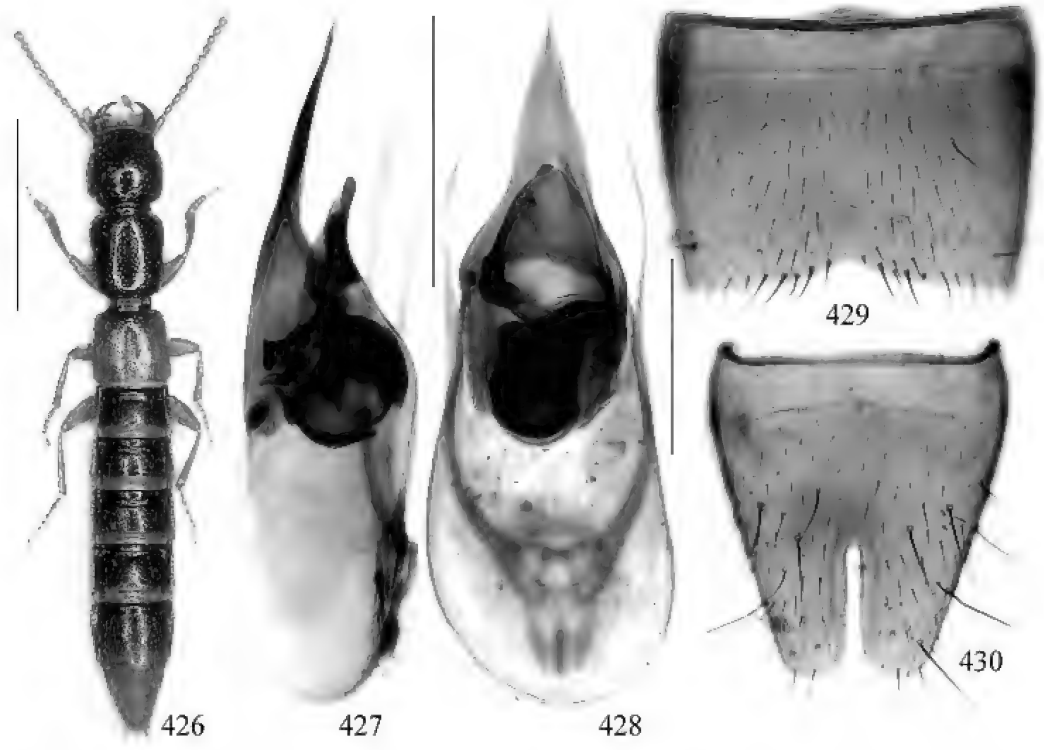
Holotype ♂: USSR – Tadžikistan, Pendžikent, steppe, Boháč lgt. IV.79 / Holotypus / *Leptobium zeravshanicum* n. sp. J. Boháč det. 1988 (cBoh). – Paratypes: 1 ♂, 3 ♀♀: same data as holotype (cBoh, cAss).

Additional material examined (total, including types: 6 exs.)

Uzbekistan – 1 ex., Uchumskiy pass ["Trkst Mnt Nurata, Uchum", 40°29N, 66°53E], 1892, leg. Glasunov (NHMW).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 6): HL: 0.78–0.84, 0.82; HW: 0.80–0.87, 0.82; PW: 0.75–0.82, 0.79; PL: 0.84–0.93, 0.88; EL: 0.54–0.60, 0.56; TiL: 0.66–0.72, 0.70; TaL: 0.62–0.70, 0.66; AL: 1.26–1.30, 1.28; TL: 5.1–6.5, 5.9; HL/HW: 0.97–1.01, 0.99; PW/HW: 0.94–0.98, 0.96; PL/PW: 1.10–1.13, 1.11; EL/PL: 0.61–0.67, 0.64; TiL/TaL: 1.00–1.10, 1.06.



Figs. 426–430. *Leptobium zeravshanicum* Boháč. – **426.** Habitus. – **427–428.** Aedeagus in lateral and in ventral view. – **429.** Male sternite VII. – **430.** Male sternite VIII. – Scale bars: 2 mm (426), 0.5 mm (427–430).

Small species (see measurements); habitus as in Fig. 426. In external appearance highly similar to *L. unciferum*, but distinguished as follows:

Coloration: head and pronotum blackish brown to blackish, otherwise as in *L. unciferum*.

Head approximately as wide as long (see ratio HL/HW); eyes larger, postocular region slightly more than 1.5 times the length of eyes in dorsal view.

Pronotum slightly narrower than head and weakly oblong (see ratios PW/HW and PL/PW), otherwise as in *L. unciferum*.

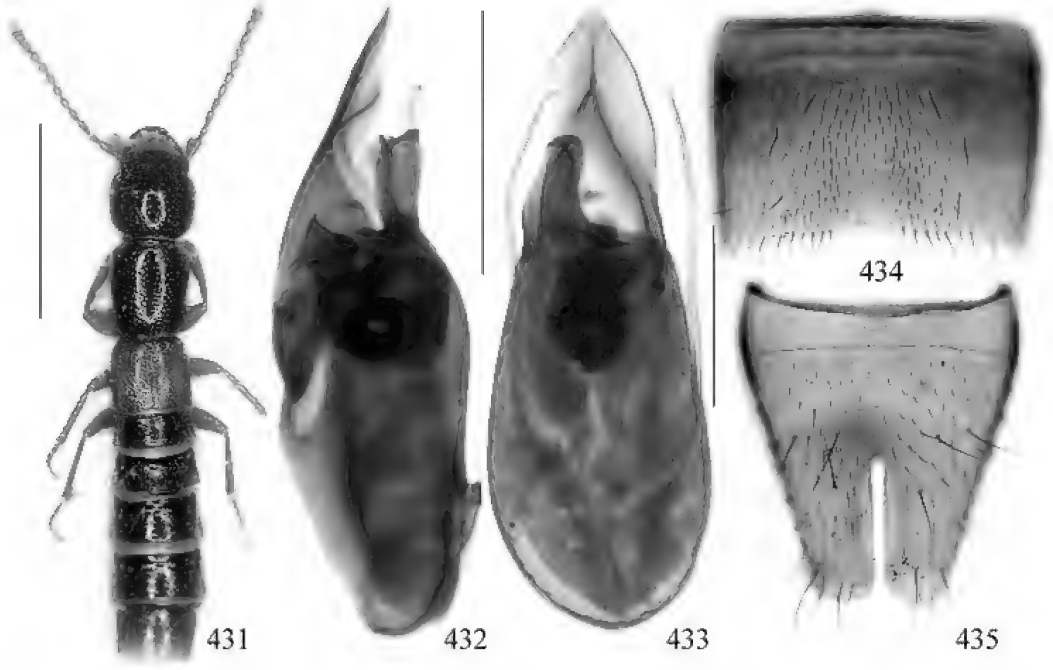
Elytra with even finer, almost indistinct puncturation.

Abdomen, too, with very fine and rather sparse puncturation; anterior tergites with microsculpture composed of short transverse meshes, tergites VI and VII with microsculpture composed of fine isodiametric meshes.

♂: sternite VII without distinct clusters of modified pubescence, modified setae present only near posterior margin, posterior margin with concavity of variable depth (Fig. 429); sternite VIII with posterior incision almost reaching middle (Fig. 430); aedeagus with almost symmetrical dorsal plate and ventral process, dorsal plate very long, slender, apically acute, and without carina; ventral process dorsally without projection (Figs. 427, 428).

Comparative notes

For distinction from the similar *L. unciferum* see description above. From other congeners of small size, *L. zeravshanicum* is readily distinguished especially by the



Figs. 431–435. *Leptobium subarisi* Coiffait. – **431.** Habitus. – **432–433.** Aedeagus in lateral and in ventral view. – **434.** Male sternite VII. – **435.** Male sternite VIII. – Scale bars: 2 mm (431), 0.5 mm (432–435).

morphology of the aedeagus, from most species also by the subquadrate head, the weakly oblong pronotum, the fine puncturation of the elytra, and the isodiametric microsculpture of the preapical tergites.

Distribution and bionomics

The species has become known only from the type locality (39°29N, 67°37E) in Tajikistan and an additional locality in Uzbekistan (Fig. 462). The types were collected in April.

3.51 *Leptobium subarisi* Coiffait, 1969 (Figs. 431–435)

Leptobium subarisi; Coiffait (1969: 861, 863).

Type examined

Holotype ♂: Bouchara, Montagnes Zeravchan, Sous les pierres / 31.3.63 [further data illegible] / Holotype / *Leptobium subarisi* Coiff., H. Coiffait det. 1968 / Muséum Paris / *Leptobium subarisi* Coiffait det. V. Assing 2004 (MNHNP).

Description

Measurements (in mm) and ratios (holotype): HL: 0.91; HW: 0.87; PW: 0.80; PL: 0.93; EL: 0.60; TiL: 0.74; TaL: 0.66; AL: 1.22; TL: 5.7; HL/HW: 1.05; PW/HW: 0.93; PL/PW: 1.15; EL/PL: 0.64; TiL/TaL: 1.13.

Habitus as in Fig. 431. External characters (size, coloration, proportions) as in *L. unciferum*, except for the slightly denser puncturation.

♂: sternite VII with weakly concave posterior margin, in posterior median area with weakly delimited cluster of rather sparse dark setae (Fig. 434); sternite VIII with posterior incision just reaching middle (Fig. 435); aedeagus highly distinctive; dorsal plate and ventral process distinctly asymmetrical, dorsal plate without pronounced ventral carinae (Figs. 432, 433); parameres with three long and stout median setae and with distinctly shorter and finer subapical setae.

Comparative notes

The species is characterised especially by the distinctive morphology of the aedeagus. Note that the apex of the dorsal plate of the aedeagus shown in Fig. 433 is apparently incomplete; the tip seems to have been broken off.

Distribution and bionomics

Only the holotype of this species has become known; the type locality is in the southeast of Uzbekistan.

3.52 *Leptobium pullum* (Solsky, 1871) (Figs. 436–440)

Dolicaon pullus; SOLSKY (1871: 161 f.).
Dolicaon arisi; REITTER (1902: 205), **n. syn.**

Types examined

D. pullus: Lectotype ♂, here designated: 23 / *Dolicaon pullus* mihi / *Leptobium pullum* (Solsky) V. I. GUSAROV det. 1994 / Lectotypus *Dolicaon pullus* Solsky desig. V. ASSING 2004 / *Leptobium pullum* (Solsky) det. V. ASSING 2004 (ZMMU).

D. arisi: Lectotype ♂, here designated: Turkestan, Auli-Ata, C. ARIS / coll. REITTER / *Dolicaon Arisi* m./ Holotypus [sic] 1902 *Dolicaon Arisi* Reitter / *Leptobium pullum* (Solsky) V. I. GUSAROV det. 1995 / Lectotypus ♂ *Dolicaon arisi* Reitter desig. V. ASSING 2003 / *Leptobium pullum* (Solsky) det. V. ASSING 2003 (HNHM).

Comments

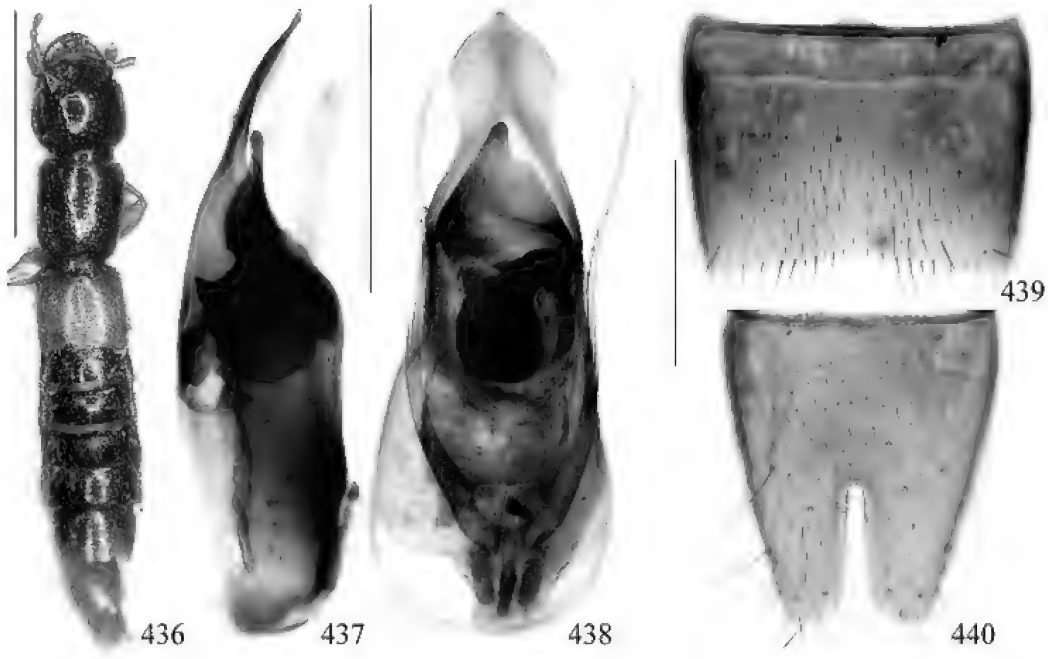
The single syntype of *D. pullus* (type locality: Uzbekistan: Samarkand) found in the ZMMU is a male in good condition and here designated as the lectotype. The original description of *Dolicaon arisi* is based on an unspecified number of syntypes from "Turkestan: Aulie-Ata" [= Džambul in Kasakhstan] (REITTER 1902). The single male specimen in the REITTER collection is here designated as the lectotype. A comparison with the lectotype of *L. pullum* revealed that both are conspecific.

Description

Measurements (in mm) and ratios (holotype of *L. pullum*, holotype of *L. arisi*): HL: 0.82, 0.84; HW: 0.82, 0.84; PW: 0.78, 0.78; PL: 0.87, 0.89; EL: 0.58, 0.58; TiL: 0.68, –; TaL: 0.62, –; AL: 1.13, 1.13; TL: 5.1; HL/HW: 1.00, 1.00; PW/HW: 0.95, 0.93; PL/PW: 1.11, 1.13; EL/PL: 0.67, 0.65; TiL/TaL: 1.1, –.

Small species (see measurements); habitus as in Fig. 436. Externally almost indistinguishable from *L. unciferum* and *L. zeravshanicum*.

♂: sternite VII of similar shape and chaetotaxy as in *L. zeravshanicum* (Fig. 439); sternite VIII with posterior incision almost reaching middle (Fig. 440); aedeagus highly distinctive, dorsal plate long and apically with weakly pronounced ventral carina, ventral process slightly asymmetrical and laterally dentate (Figs. 437, 438).



Figs. 436–440. *Leptobium pullum* (Solsky), holotype of *L. arisi* (Reitter). – **436.** Habitus. – **437–438.** Aedeagus in lateral and in ventral view. – **439.** Male sternite VII. – **440.** Male sternite VIII. – Scale bars: 2 mm (436), 0.5 mm (437–440).

Comparative notes

The species is characterised especially by the distinctive morphology of the aedeagus. From the similar *L. zeravshanicum*, it is additionally separated by the smaller eyes.

Distribution and bionomics

Leptobium pullum is known from the respective type localities of *L. pullum* and its synonym *L. arisi* in Kazakhstan and Uzbekistan. Bionomic data are not available.

3.53 *Leptobium eppelsheimi* Coiffait, 1969 (Figs. 441–444, 462)

Leptobium eppelsheimi; Coiffait (1969: 850, 872).

Type examined

Holotype ♂: 110 / *semirufus* Fauv., Taschkent, Ulkinin [recte: Akinin?] / *semirufus* Fauv. Fne Gallo-Rh. III. Cat. syst. Staph. p. XXI / Collect. Eppelsh. / Type / *Leptobium eppelsheimi* Coiff. H. Coiffait det. 1969 (NHMW).

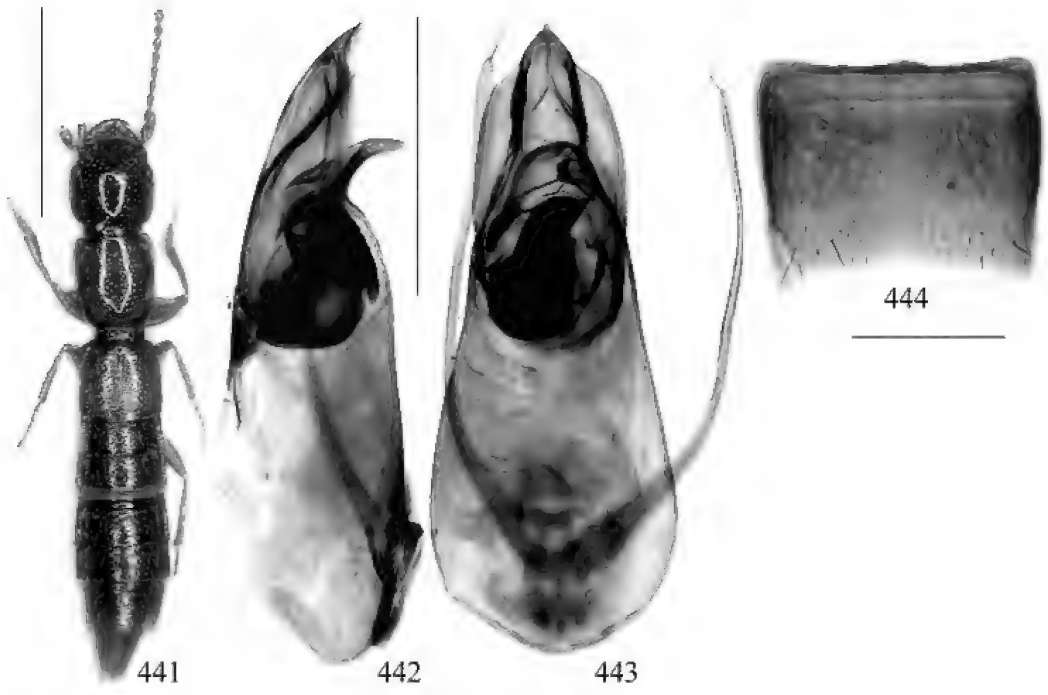
Description

Measurements (in mm) and ratios (holotype): HL: 0.87; HW: 0.81; PW: 0.78; PL: 0.89; EL: 0.54; TiL: 0.68; AL: 1.17; TL: 5.4; HL/HW: 1.06; PW/HW: 0.96; PL/PW: 1.13; EL/PL: 0.60.

Small species (see measurements); habitus as in Fig. 441. In external appearance highly similar to *L. unciferum*, but distinguished as follows:

Pronotum rufous, not darker than elytra and lighter than head. Puncturation of pronotum slightly denser.

♂: sternite VII without distinct clusters of modified pubescence, posterior margin broadly concave (Fig. 444); sternite VIII with posterior incision not reaching middle



Figs. 441–444. *Leptobium eppelsheimi* Coiffait, holotype. – **441.** Habitus. – **442–443.** Aedeagus in lateral and in ventral view. – **444.** Male sternite VII. – Scale bars: 2 mm (441), 0.5 mm (442–444).

(Fig. 445); aedeagus highly distinctive; dorsal plate symmetrical, with two pronounced dorsal carinae and apico-ventrally with distinct median carina; ventral process weakly asymmetrical (Figs. 442, 443).

Comparative notes

Leptobium eppelsheimi is distinguished from similar Middle Asian congeners (*L. unciferum*, *L. pullum*, *L. zeravshanicum*, *L. hauseri*) especially by the characteristic morphology of the aedeagus, from most of these species also by the light-coloured pronotum.

Distribution and bionomics

The species is known only from the type locality Taschkent in Uzbekistan (Fig. 462). Bionomic data are not available.

3.54 *Leptobium hauseri* (Bernhauer, 1915) (Figs. 445–449, 463)

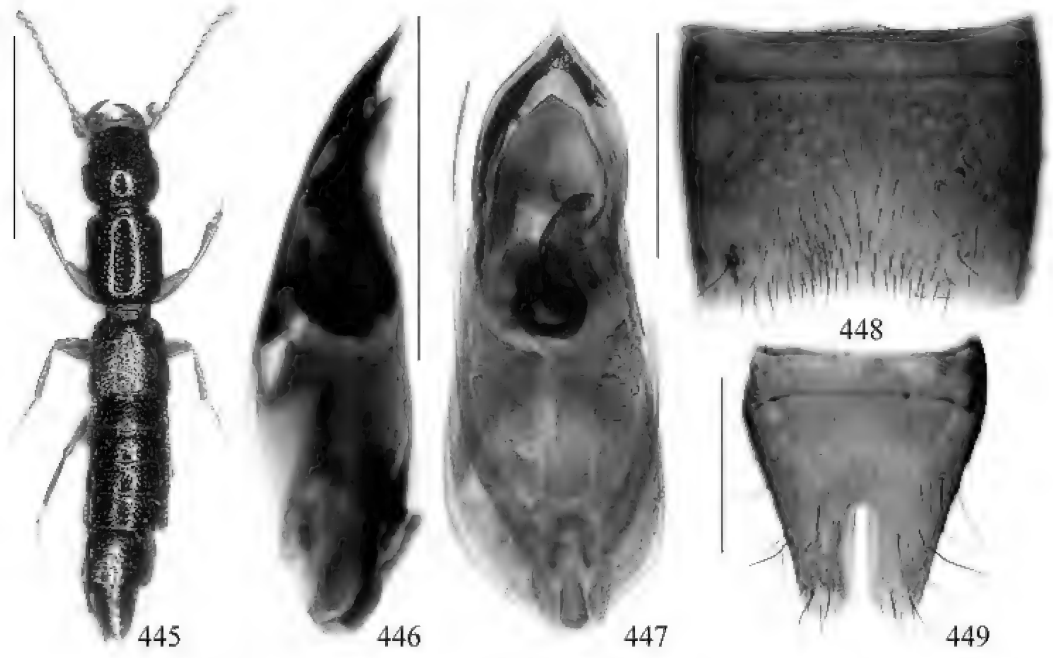
Dolicaon hauseri; Bernhauer (1915: 266f.).

Types examined

Lectotype ♀, here designated: Mts. Karateghin, Baldschuan [38°18N, 69°40E], 924 m, F. Hauser 1898 / *Hauseri* Brh. Type / Chicago NHMus. M. Bernhauer Collection / *Leptobium hauseri* (Bh.) Gusarov det. 1998 / Lectotypus ♀ *Dolicaon hauseri* Bernhauer desig. V. Assing 2004 / *Leptobium hauseri* (Bernhauer) det. V. Assing 2004 (FMNH). – Paralectotype ♀: same data as lectotype (FMNH).

Additional material examined (total, including types: 3 exs.)

Tajikistan – 1 ex., same data as type specimens (NHMW).



Figs. 445–449. *Leptobium hauseri* (Bernhauer). – **445**. Habitus. – **446–447**. Aedeagus in lateral and in ventral view. – **448**. Male sternite VII. – **449**. Male sternite VIII. – Scale bars: 2 mm (445), 0.5 mm (446–449).

Comments

The original description is based on an unspecified number of syntypes. In the BERNHAUER collection, two female syntypes were found, one of which is here designated as the lectotype in order to secure the present interpretation of the species.

Description

Measurements (in mm) and ratios (range; n = 3): HL: 0.72–0.78; HW: 0.72–0.76; PW: 0.70–0.74; PL: 0.82–0.88; EL: 0.52–0.54; TiL: 0.64–0.68; TaL: 0.58–0.64; AL: 0.93; TL: 4.5–5.2; HL/HW: 0.97–1.03; PW/HW: 0.97; PL/PW: 1.14–1.18; EL/PL: 0.61–0.65; TiL/TaL: 1.06–1.11.

Small species; habitus as in Fig. 445. Similar to *L. unciferum*, but distinguished as follows:

On the whole smaller (see measurements); habitus as in Fig. 445. Coloration darker and weakly bicoloured to uniformly dark brown; head and pronotum blackish brown, elytra and abdominal apex castaneous to dark reddish, not or only slightly lighter than pronotum, abdomen anteriorly black, appendages rufous. Head subcircular, with distinctly convex lateral margins; eyes smaller, less than half the length of postgenae in dorsal view. Abdomen with slightly coarser puncturation and on average slightly more distinct microsculpture predominantly composed of transverse meshes.

♂: sternite VII with weakly concave posterior margin, in posterior median area with weakly delimited cluster of rather sparse dark setae (Fig. 448); sternite VIII with posterior incision not reaching middle (Fig. 449); aedeagus highly distinctive; dorsal plate and ventral process almost symmetrical, without pronounced carinae (Figs. 446, 447).

Comparative notes

Leptobium hauseri is distinguished from the similar preceding species especially by its small size and the characteristic morphology of the aedeagus.

Distribution and bionomics

The species is known only from the type locality in the Karateghin mountains in Tajikistan (Fig. 463), where it was collected at an altitude of about 900 m.

3.55 *Leptobium babatagense* Boháč, 1969 (Figs. 450–452, 458, 459, 463)

Leptobium babatagense; BOHÁČ (1988: 434f.).

Types examined

Holotype ♂: USSR – Tajikistan, Baba dag Mt. Kafirgen riv., J. BOHÁČ lgt. IV.83 / Holotypus / *Leptobium babatagense* n. sp. J. BOHÁČ det. (cBoh). – Paratypes: see under 3.56 *Leptobium khnzoriani.*

Comment

The paratypes are not conspecific with the holotype and refer to *L. khnzoriani.*

Description

Measurements (in mm) and ratios (holotype): HL: 1.09; HW: 1.11; PW: 1.01; PL: 1.14; EL: 0.68; TiL: 0.87; AL: 1.69; TL: 7.6; HL/HW: 0.98; PW/HW: 0.91; PL/PW: 1.13; EL/PL: 0.59; TiL/TaL: 1.14.

Moderately large species (see measurements); habitus as in Fig. 450.

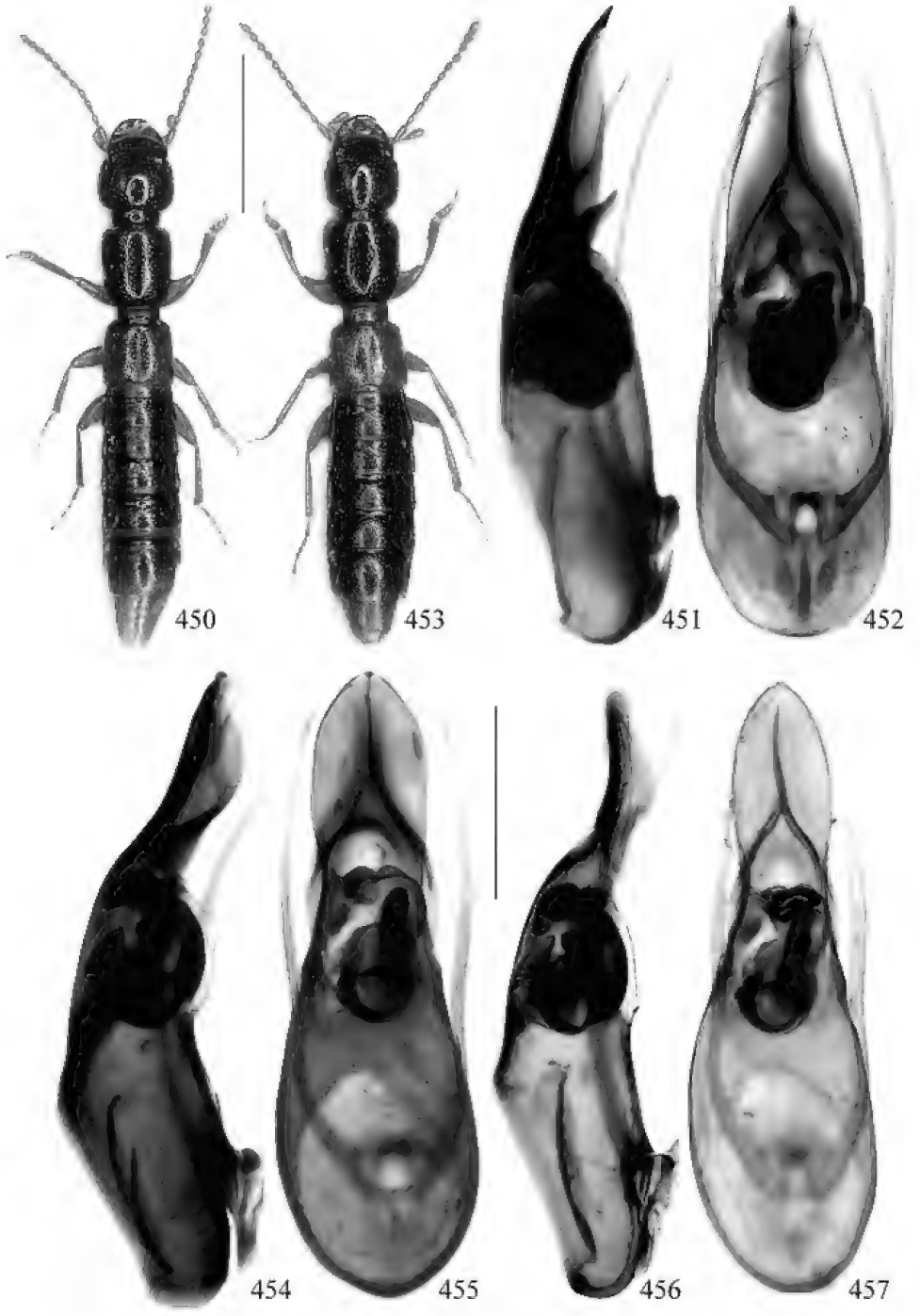
Coloration: head, pronotum, and abdominal segments III–VII (except for the apical third of segment VII) blackish brown to blackish; elytra and abdominal segments VIII–X, plus the apical third of segment VII, rufous; appendages bright reddish yellow.

Head slightly wider than long (see ratio HL/HW); eyes relatively small; postocular region slightly more than twice the length of eyes in dorsal view; puncturation relatively sparse, with the interstices on average about 2–3 times the width of punctures, and not very coarse, with some interspersed micropunctures. Antennae slender, antennomere III approximately 1.5 times as long as II, VI distinctly oblong, and X about as wide as long.

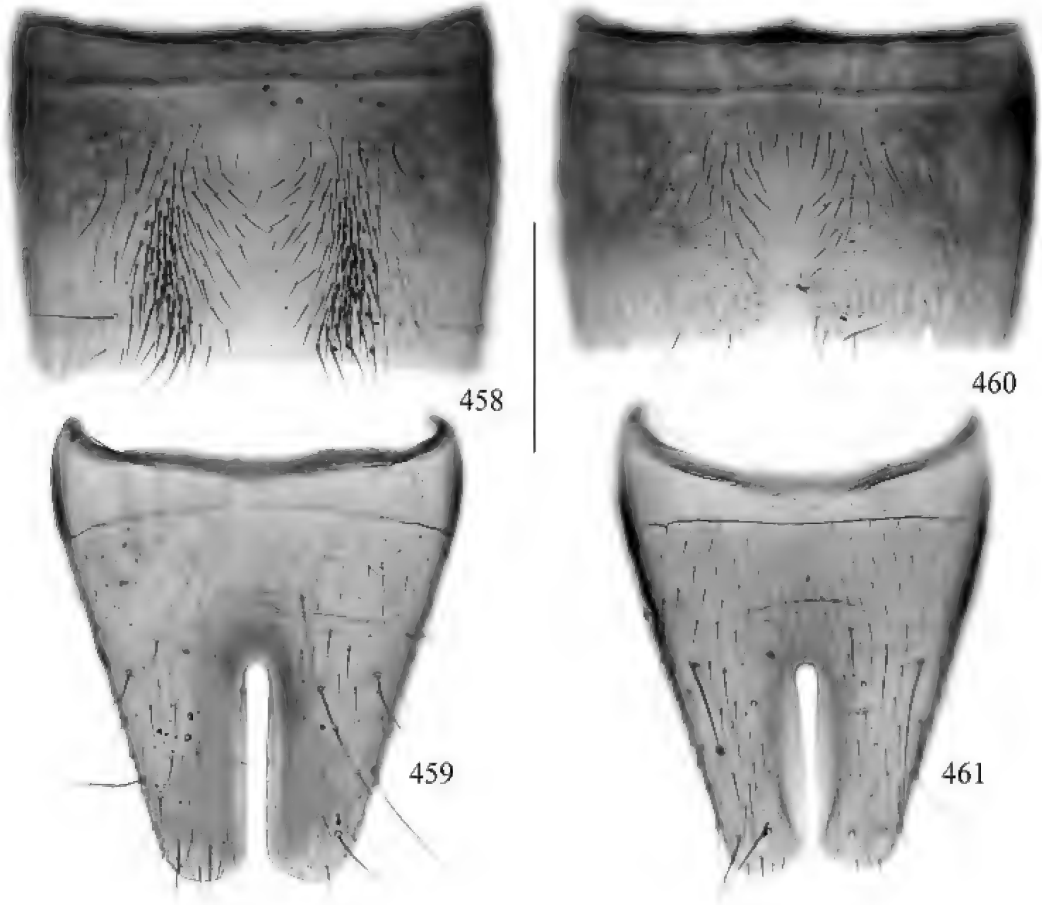
Pronotum distinctly narrower than head and moderately oblong (see ratios PW/HW and PL/PW); lateral margins very weakly tapering caudad in dorsal view; puncturation denser than that of head.

Elytra short in relation to pronotum (see ratio EL/PL); puncturation fine and shallow; pubescence suberect. Hind wings reduced. Abdomen slightly wider than elytra; microsculpture shallow, predominantly composed of dense and fine transverse meshes on posterior and striae on anterior tergites; posterior margin of tergite VII without palisade fringe.

♂: sternite VII with rather extensive median impression, on either side of this impression with conspicuous cluster with numerous dark stout setae, in posterior median area without pubescence, posterior margin shallowly concave (Fig. 458); sternite VIII with posterior incision reaching middle (Fig. 459); aedeagus of highly derived morphology, very long and slender, with long parameres, ventral process strongly asymmetrical; dorsal plate with pronounced ventral carina (Figs. 451, 452).



Figs. 450–457. *Leptobium babatagense* Boháč, holotype (450–452) and *L. khnzoriani* Coiffait (453–457) (454–455: holotype). – **450**, **453**. Habitus. – **451–452**, **454–457**. Aedeagus in lateral and in ventral view. – Scale bars: 2 mm (450, 453), 0.5 mm (451–452, 454–457).



Figs. 458–461. *Leptobium babatagense* Boháč, holotype (458–459) and *L. khnzoriani* Coiffait, holotype (460–461). – **458**, **460**. Male sternite VII. – **459**, **461**. Male sternite VIII. – Scale bar: 0.5 mm.

Comparative notes

The species is distinguished from its congeners especially by the highly derived morphology of the aedeagus, from the preceding Middle Asian species also by larger size.

Distribution and bionomics

The species has become known only from the type locality in Tajikistan (Fig. 463); additional bionomic data are not available.

3.56 *Leptobium khnzoriani* Coiffait, 1969 (Figs. 453–457, 460, 461, 463)

Leptobium khnzoriani; Coiffait (1969: 849, 862).
Leptobium babatagense; Boháč (1988: 434f.), partly misident.

Type examined

Holotype ♂: Stalinabad [= Dushanbe], Kondara, Tadj. [in Cyrillic], 6.5.61 / Type / désiré / *Leptobium khnzoriani* H. Coiffait det. 1969 / *Leptobium khnzoriani* Coiff. V. I. Gusarov det. 2003 / *Leptobium khnzoriani* Coiffait det. V. Assing 2004 (cKal).

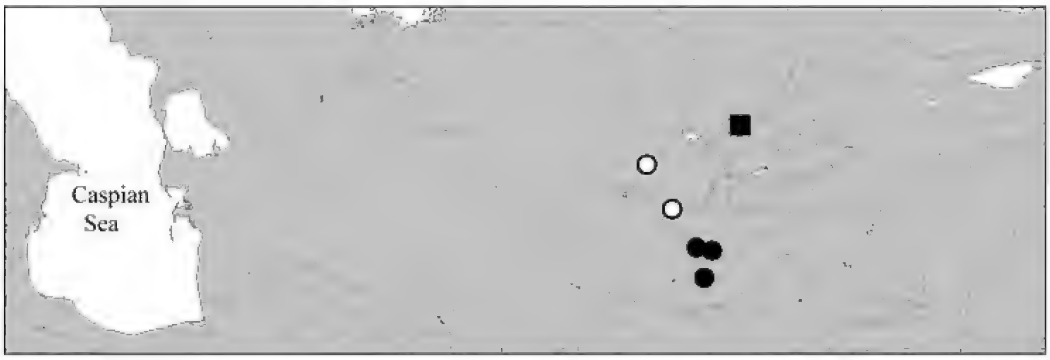


Fig. 462. Distributions of *Leptobium unciferum* Coiffait (●), *L. zeravshanicum* Boháč (○), and *L. eppelsheimi* Coiffait (■) in Middle Asia, based on revised records.

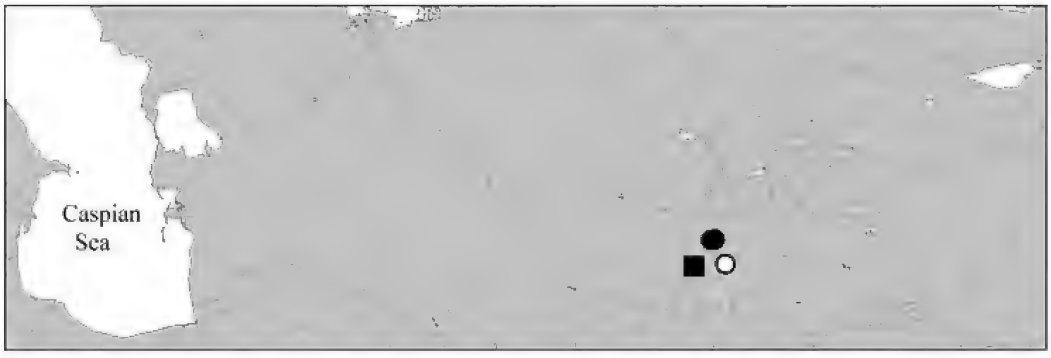


Fig. 463. Distributions of *Leptobium khnzoriani* Coiffait (●), *L. babatagense* Boháč (■), and *L. hauseri* (Bernhauer) (○) in Middle Asia, based on revised records.

Additional material examined (paratypes of *L. babatagense*)

2 ♀♀: USSR – Tajikistan, Hissar Mt.-Takob, 3000 m, Boháč lgt., IV.83 (cBoh) / Paratypus / *Leptobium babatagense* n. sp. J. Boháč det. (cBoh, ZIN); 1 ♀: USSR – Tajikistan, Hissar Mt.-Takob, 2000 m, Boháč lgt., 20.IV.83 / Paratypus / *Leptobium babatagense* n. sp. J. Boháč det. (cAss).

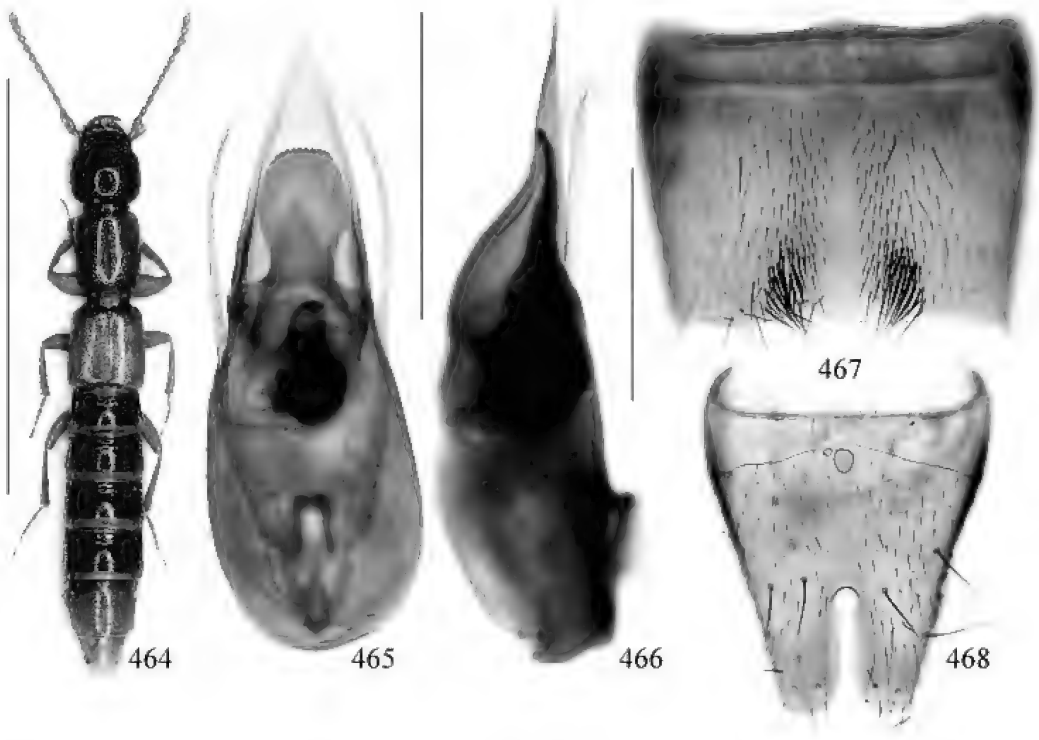
Description

Measurements (in mm) and ratios (range, arithmetic mean; n = 4): HL: 0.99–1.13, 1.07; HW: 0.97–1.11, 1.06; PW: 0.93–1.09, 1.04; PL: 1.03–1.22, 1.16; EL: 0.66–0.74, 0.71; TiL: 0.80–0.95, 0.91; TaL: 0.74–0.84, 0.80; AL: 1.63–1.67, 1.65; TL: 6.9–8.0, 7.5; HL/HW: 1.00–1.02, 1.01; PW/HW: 0.96–1.02, 0.98; PL/PW: 1.09–1.13, 1.11; EL/PL: 0.54–0.66, 0.61; TiL/TaL: 1.08–1.18, 1.13.

Habitus as in Fig. 453. Highly similar to *L. babatagense*, with which this species was previously confounded, distinguished only by the following characters:

Apex of segment VII more narrowly (about $^1/_5$ of length of segment) rufous. Eyes even smaller, about $^1/_3$ of the length of postocular region in dorsal view.

♂: sternite VII less strongly modified, with shallower impression in the middle and with less pronounced clusters of modified setae (Fig. 460); sternite VIII as in Fig. 461; aedeagus of similar general morphology as in *L. babatagense*, but dorsal



Figs. 464–468. *Leptobium turcmenicum* Coiffait. – **464**. Habitus. – **465–466**. Aedeagus in ventral and in lateral view. – **467**. Male sternite VII. – **468**. Male sternite VIII. – Scale bars: 1 mm (464), 0.2 mm (465–468).

plate wider and of different shape, apical part of ventral carina more projecting in lateral view and shorter; ventral process of different shape (Figs. 454–457).

Comparative notes

The species is distinguished from its congeners especially by the highly derived morphology of the aedeagus; for separation from the similar *L. babatagense*, evidently its sister species, see description above.

Distribution and bionomics

The species was found in the Hissar range, Tajikistan (Fig. 463), at altitudes of 2000 and 3000 m.

4 Additional records of *Leptobium* from the Atlantic Islands

Except for *L. paivae* Wollaston, the following species were treated in detail earlier (ASSING 1999a).

4.1 *Leptobium nigricolle nigricolle* (Wollaston, 1862)

Additional material examined (total: 13 exs.)

Canary Islands – Lanzarote: 1 ex., Bco. de Temisas near Haria (IRSNB); 11 exs., without further specifications (IRSNB). – Graciosa: 1 ex., locality not specified (IRSNB).

4.2 *Leptobium nigricolle canariense* (Fauvel, 1898)

Additional material examined (total: 29 exs.)

Canary Islands – Gran Canaria: 8 exs., Fataga, 23.–26.I.1992, leg. Jenis Ivo (NHMW); 1 ex., San Mateo (SMTD); 1 ex., Teror (SMTD); 1 ex., Las Palmas, Tatira, 28.II.1930, leg. Schatzmayr (MCSNM); 1 ex., Las Palmas, S. Mateo, 21.II.1930, leg. Schatzmayr (MCSNM); 1 ex., S. Mateo (IRSNB); 1 ex., Doramas (IRSNB); 5 exs., Las Palmas, II.1930, leg. Schatzmayr (MCSNM, NHMB); 7 exs., locality not specified, III.1933, leg. Frey (NHMB); 1 ex., Bco. de Temisas (IRSNB); 1 ex., Barranco Oscuro near Firgas (IRSNB); 1 ex., locality not specified (IRSNB).

4.3 *Leptobium nigricolle ruficolle* (Wollaston, 1862)

Additional material examined (total: 5 exs.)

Canary Islands – Fuerteventura: 5 exs., locality not specified (IRSNB).

Comments

The taxonomic status of this taxon has been considered doubtful (Assing 1999a), because the only characters distinguishing *L. ruficolle* and *L. nigricolle* were the coloration, slight differences in eye size and in the relative length of the aedeagus. Since it has been shown that colour polymorphisms are not unusual and the remaining differences, too, are within the usual range of interspecific variation, it does not seem very likely that *L. ruficolle* and *L. nigricolle* are distinct species. Since both morphs appear to have a distinct distribution pattern, they are here considered subspecies. In order to cause the least possible nomenclatural changes, *L. nigricolle* is proposed as the senior name.

4.4 *Leptobium debilipenne* (Wollaston, 1865)

Additional material examined (total: 1 ex.)

Canary Islands – La Gomera: 1 ex., locality not specified (IRSNB).

4.5 *Leptobium paivae* (Wollaston, 1865)

Additional material examined (total: 17 exs.)

Ilhas Selvagens – 13 exs., Gr. Salvage, 5.VIII.1882, leg. Corsario (DEI, IRSNB, MCSNM, MCSNT, NHMW, cAss); 4 exs., Gr. Salvage, VII.1927, leg. Corto (IRSNB, cAss).

Comment

This species is endemic to the Ilhas Selvagens and easily recognised by external characters, especially its uniformly dark coloration.

5 Catalogue of species

A total of 61 valid species and subspecies of *Leptobium* is currently known, including the newly described species. Tab. 2 gives a complete checklist of both valid names and synonyms, with the corresponding page numbers. No page number is indicated for *L. gomerense*, since this species is exclusively treated by ASSING (1999a, c).

Tab. 2. Valid species of *Leptobium* in alphabetical order, synonyms in chronological order, and distribution.

Species	Distribution	Page
arabicum Coiffait, 1969	Saudi Arabia, Yemen	134
artum (Karsch, 1881) = *cribricolle* (Fauvel, 1869); **n. syn.** = *artum oleae* (Koch, 1937); **n. syn.** = *artum algiricum* Jarrige, 1952; **n. syn.** = *tingitanum* Coiffait, 1969; **n. syn.**	northwestern Africa, from Morocco to Libya	99
assingi Bordoni, 1994	southern Turkey	84
babatagense Boháč, 1969	Tajikistan	165
bicarinatum **n. sp.**	Turkey: Antakya; Syria	98
brevicolle (Koch, 1937) = *nigrifrons* Jarrige, 1952; **n. syn.** = *borougense* Coiffait, 1969; **n. syn.** = *antoinei* Coiffait, 1969; **n. syn.** = *punctigerum dexter* Coiffait, 1969; **n. syn.** = *testense* Coiffait, 1973; **n. syn.** = *ifnense* Coiffait, 1973; **n. syn.** = *mateui* Coiffait, 1973; **n. syn.** = *otini* Coiffait, 1981; **n. syn.**	southwestern Morocco	144
carinatum **n. sp.**	southwestern Turkey	123
chinense **n. sp.**	China: Hebei	35
colasi (Coiffait, 1954)	southern Iberian peninsula	81
creticum Coiffait, 1973 = *minos* Bordoni, 1984; **n. syn.**	Greece: Crete	38
debilipenne (Wollaston, 1865)	Canary Islands: La Gomera	170
densiventre (Fauvel, 1875) = *siculum* (Gridelli, 1926); **n. syn.** = *boiteli* (Normand, 1938); **n. syn.** = *densiventre* Fagel, 1957; **n. syn.** = *lucidum* Fagel, 1957; **n. syn.** = *kabylianum* Fagel, 1957; **n. syn.** = *sparsiceps* Coiffait, 1969; **n. syn.** = *vaulogeri* Coiffait, 1969; **n. syn.** = *fernanense* Coiffait, 1969; **n. syn.** = *tuniseum* Coiffait, 1969; **n. syn.** = *diabolicum* Coiffait, 1969; **n. syn.** = *vulcanum* Coiffait, 1969; **n. syn.** = *rambouseki* Bordoni, 1984; **n. syn.**	Algeria, Tunisia, Libya, Italy: Sicily	63
dimidiatum (Gridelli, 1926) = *reitteri* Coiffait, 1969; **n. syn.**	Romania, Georgia, Turkmenistan	29
doderoi (Gridelli, 1926) = *ferreri* Coiffait, 1982; **n. syn.**	southern Iberian peninsula	76

Tab. 2 (continued)

Species	Distribution	Page
drusiacum Coiffait, 1969	Middle East: Anti-Lebanon	129
eppelsheimi Coiffait, 1969	Uzbekistan	162
exiguum **n. sp.**	Russia: Primorskiy Kray	33
fagniezi Jarrige, 1952	northern Algeria	119
festae (Gridelli, 1924)	Libya: Cyrenaica	155
geminum **n. sp.**	southern Turkey: Gaziantep	128
gomerense Assing, 1999	Canary Islands: La Gomera	
gracile (Gravenhorst, 1802) = *biguttulum* (Lacordaire, 1835)) = *haemorrhoum* (Erichson, 1840); **n. syn.** = *truquii* (Saulcy, 1864) = *biguttulum* v. *anale* (Reitter, 1902); **n. syn.** = *winkleri* (Koch, 1937); **n. syn.** = *haemorrhoum cedri* (Koch, 1937); **n. syn.** = *berberum* (Koch, 1937); **n. syn.** = *biguttulum brachypterum* (Coiffait, 1954) = *duplicatum* Fagel, 1958; **n. syn.** = *piochardi* Coiffait, 1969; **n. syn.** = *obenbergeri* Bordoni, 1984; **n. syn.** = *limnodes* Bordoni, 1984	southern W-Palaearctic, from Canary Islands to Middle Asia and Iran,? Ethiopia	10
graecum Gusarov, 1988	southern Greece	44
gridellii (Koch, 1941) = *jarrigei* (Koch, 1941); **n. syn.** = *melillense* Coiffait 1969; **n. syn.**	northern Morocco	111
hauseri (Bernhauer, 1915)	Tajikistan	163
illyricum (Erichson, 1840) = *illyricum moreum* Coiffait, 1969; **n. syn.** = *ionicum* Bordoni, 1984; **n. syn.**	Slovenia, Balkans, Turkey	45
juani Coiffait, 1969	Spain: Alicante	79
khnzoriani Coiffait, 1969	Tajikistan	167
korbi (Eppelsheim, 1891) = *tronqueti* Lecoq, 1986; **n. syn.**	southern Spain	142
korgei **n. sp.**	Syria	89
longitibiale Assing & Wunderle, 2001	Cyprus	57
melanocephalum (Reiche & Saulcy, 1856)	southern Greece	36
mouzaiense Coiffait, 1969	northern Algeria	122
mutabile **n. sp.**	southwestern Turkey: Antalya	125
nigricolle nigricolle (Wollaston, 1862) = *wollastoni confusum* Coiffait, 1969	Canary Islands: Lanzarote, Fuerteventura, La Graciosa, Alegranza, Montaña Clara	170
nigricolle canariense (Fauvel, 1898) = *wollastoni* Coiffait, 1954	Canary Islands: Gran Canaria	170
nigricolle continentale Jarrige, 1952 = *ovaliceps* Coiffait, 1969; **n. syn.**	western Morocco	109
nigricolle ruficolle (Wollaston, 1862)	Canary Islands: Fuerteventura, Los Lobos	170
obesum (Fauvel, 1875) = *cisjordanicum* Coiffait, 1969; **n. syn.** = *bruleriei* Coiffait, 1969; **n. syn.**	Middle East: Lebanon, Israel	131

Tab. 2 (continued)

Species	Distribution	Page
paivae (Wollaston, 1865)	Ilhas Selvagens	170
pominii (Gridelli, 1949)	southern Italy: Monte Gargano	74
ponticum **n. sp.**	northern Turkey: Sinop	95
pseudosiculum Jarrige, 1952	northern Algeria	117
pullum (Solsky, 1871) = *arisi* (Reitter, 1902); **n. syn.**	Kazakhstan, Uzbekistan	161
punctigerum (Fauvel, 1886) = *kocheri* Jarrige, 1952; **n. syn.** = *punctigerum medium* Coiffait, 1969; **n. syn.** = *tazekense* Coiffait, 1969; **n. syn.** = *rifense* Coiffait, 1969; **n. syn.** = *peyerimhoffi* Coiffait, 1969; **n. syn.**	northwestern Morocco	149
rubripenne (Reitter, 1891)	Middle Asia: Uzbekistan	27
schuelkei **n. sp.**	southern Turkey: Antakya	89
semirufum (Fauvel, 1875)	Middle East: Anti-Lebanon	139
silvestrii (Gridelli, 1926)	Libya: Cyrenaica	155
sparsum (Reitter, 1887) = *caucasicum* Coiffait, 1969	western Caucasus region	91
subarisi Coiffait, 1969	Uzbekistan	160
subglaciale (Koch, 1937) = *subglaciale demnatense* Coiffait, 1969; **n. syn.** = *mineti* Coiffait, 1980; **n. syn.** = *moraguesi* Coiffait, 1984; **n. syn.**	Morocco: Haut Atlas	112
syriacum (Saulcy, 1864) = *fageli* Jarrige, 1952; **n. syn.** = *gridellianum* Jarrige, 1952; **n. syn.** = *hermonense* (Coiffait, 1954); **n. syn.** = *anatolicum* Coiffait, 1972; **n. syn.** = *waldeni* Bordoni, 1990; **n. syn.**	southern Turkey, Middle East, Cyprus	58
tauricum Gusarov, 1988	Turkey: Bursa; Ukraine: Crimea	93
thryptisense **n. sp.**	Greece: Crete	43
turcmenicum Coiffait, 1967	Middle Asia: Turkmenistan, Uzbekistan, Kazakhstan	32
unciferum Coiffait, 1969 = *macrocephalum* Coiffait, 1969; **n. syn.**	Tajikistan	156
venustum (Baudi, 1848) = *jordanicum* Coiffait, 1981; **n. syn.**	Middle East	137
wunderlei Bordoni, 1994	southern Turkey: Antalya	55
yemenicum **n. sp.**	Yemen	136
zeravshanicum Boháč, 1988	Tajikistan; Uzbekistan	158

6 Key to the species of *Leptobium*

In view of the high degree of intraspecific variation, the low diversity of distinguishing characters, and finally the usually low degree of interspecific character divergence, a key exclusively – or even predominantly – relying on morphological characters would be rather inefficient and of little use for the identification of *Leptobium* material. Therefore, in order to increase the workability and efficiency of the key and to facilitate its use, biogeographic data are not only incorporated as additional information, but are attributed special weight. The references to illustrations in Assing (1999a) are given as "(A99: fig....)".

1 Species with relatively long elytra, EL/PL ≥ 0.74, but mostly greater than 0.80. Hind wings present, though often of reduced length. Posterior margin of abdominal tergite VII always with palisade fringe. 2
– Species with short elytra, EL/PL ≤ 0.78, but mostly below 0.70 (one species with an average value of 0.74 is very large and confined to the south of the Iberian peninsula). Hind wings completely reduced. Posterior margin of abdominal tergite VII without or with very narrow rudiment of a palisade fringe. 7
2 Very small species (HL < 0.70 mm; HW < 0.65 mm; PW < 0.70 mm; PL < 0.80 mm) from the east of the Eastern Palaearctic region, east of 110° eastern longitude. 3
– Usually larger species from the Western Palaearctic region and Middle Asia, west of 70° eastern longitude. 4
3 Smallest species of the genus (HL ≤ 0.66 mm; HW ≤ 0.58 mm; PW ≤ 0.62 mm; PL ≤ 0.74 mm). Forebody more or less uniformly ferrugineous to castaneous. Aedeagus as in Figs. 60–62. – Russian Far East (Primorskiy Kray). ..... ***L. exiguum* n. sp.**
– Of slightly larger size. Forebody of darker coloration, head dark brown. Aedeagus as in Figs. 66, 67. – NE-China (Hebei). ..... ***L. chinense* n. sp.**
4 Pronotum reddish to reddish brown. Elytra finely and densely punctate. Aedeagus as in Figs. 465, 466. – Middle Asia. ..... ***L. turcmenicum*** Coiffait
– Pronotum usually blackish. Elytra less finely and densely punctate. Aedeagus of different shape. 5
5 Elytra extensively reddish, at most only the area near scutellum weakly infuscate. Aedeagus as in Figs. 46, 47. – Uzbekistan. ..... ***L. rubripenne*** (Reitter)
– Elytra posteriorly either with yellowish spots or reddish, anteriorly usually more or less extensively blackish. Aedeagus of different shape. 6
6 Rare species known from Romania, Georgia, and Turkmenistan (Fig. 58). Aedeagus as in Figs. 51–54. ..... ***L. dimidiatum*** (Gridelli)
– Most common and most widespread species of the genus: south of Western Palaearctic from Canary Islands to Middle Asia and Iran, including North Africa (Fig. 43). Aedeagus highly variable (shaped as in Figs. 12–36). ..... ***L. gracile*** (Gravenhorst)
7 Endemic to Atlantic Islands. 8
– Absent from Atlantic islands. 13
8 Coloration of body uniformly blackish. – Endemic to Ilhas Selvagens. ..... ***L. paivae*** (Wollaston)
– Body of light coloration or bicoloured. – Endemic to Canary Islands. 9
9 Head and pronotum uniformly yellowish brown to castaneous; abdominal segment VII of similar colour as forebody. Eyes smaller, at most about $^1/_4$ the length of postgenae in dorsal view. Elytra slightly shorter. – Endemic to La Gomera. 10
– At least head blackish brown to black; abdominal segment VII infuscate (in *L. nigricolle canariense*, head and pronotum may exceptionally be brown, but the abdominal segment VII is always blackish). Eyes larger, at least $^1/_3$ the length of postgenae in dorsal view. Elytra slightly longer. – Absent from La Gomera. 11
10 Abdominal segments III–VI dark brown to black, distinctly contrasting with the yellowish brown to reddish brown forebody and abdominal apex. Size smaller (HW < 0.86 mm). ♂: posterior incision of sternite VIII deeper; dorsal plate of aedeagus apically very acute, ventral process of characteristic shape (A99: figs. 8b, d). ..... ***L. debilipenne*** (Wollaston)
– Whole body ± uniformly reddish brown to castaneous. Size larger (HW > 0.85 mm). ♂: posterior incision of sternite VIII less deep; dorsal plate of aedeagus apically less acute, ventral process of different shape (A99: figs. 8a, c). ..... ***L. gomerense*** Assing

11 Pronotum reddish. Eyes on average larger. ♂: aedeagus relatively larger (A99: fig. 4a). – Endemic to Fuerteventura, Lobos,?Lanzarote. ..... ***L. nigricolle ruficolle*** (Wollaston)
– Pronotum as dark as head. Eyes usually smaller. ♂: aedeagus slightly smaller. **12**
12 On average smaller (HL < 1.15 mm; PL < 1.20 mm). Head usually with distinct hind angles, relatively shorter (HL/HW: 1.01–1.11), wider (PW/HW: 0.95–1.04), and on average with denser punctation (A99: fig. 3b). ♂: aedeagus on average smaller (A99: figs. 2a–c). – Gran Canaria. ..... ***L. nigricolle canariense*** (Fauvel)
– On average larger (HL > 0.95 mm; PL > 1.05 mm). Head usually without distinct hind angles, relatively longer (HL/HW: 1.05–1.16), narrower (PW/HW: 0.99–1.10), and on average with less dense punctation (A99: fig. 3a). ♂: aedeagus on average larger (A99: figs. 1a–e). – Lanzarote, La Graciosa, Alegranza, Montaña Clara, Fuerteventura. .... ***L. nigricolle nigricolle*** (Wollaston)
13 Species from Middle Asia. **54**
– Species from the Western Palaearctic region west of the Caspian Sea. **14**
14 Species from the Iberian peninsula. **15**
– Absent from the Iberian peninsula. **18**
15 Relatively small species of more or less uniformly yellowish brown to reddish brown coloration. Aedeagus highly distinctive (Figs. 380, 381). – Known only from Cádiz province (Fig. 402). ..... ***L. korbi*** (Eppelsheim)
– At least the head blackish. Aedeagus of completely different morphology. **16**
16 Very large species (HL ≥ 1.28 mm; HW ≥ 1.17 mm; PW ≥ 1.24 mm; PL ≥ 1.42 mm) with relatively long elytra. Pronotum of variable coloration, either black or bright reddish. Aedeagus as in Figs. 182, 183, 185, 186. – Spain (Andalucía) and Portugal (Algarve) (Fig. 189). .. .. ***L. doderoi*** (Gridelli)
– Distinctly smaller species. **17**
17 Species known only from the surroundings of Alicante (Fig. 202). Aedeagus as in Figs. 191, 192, dorsal plate with median dorsal carina. ..... ***L. juani*** Coiffait
– Species from southern Spain (Andalucía,?Estremadura) and southern Portugal (Fig. 202). Aedeagus as in Figs. 195, 196, 200, dorsal plate with pair of dorsal carinae. .... ***L. colasi*** (Coiffait)
18 Species from North Africa and Italy. **19**
– Distribution different. **31**
19 Species of the *illyricum* coloration pattern, i. e. head, pronotum, and abdominal segments III–VII blackish, elytra and abdominal apex more or less reddish. **20**
– At least pronotum lighter, dark brown at most. **28**
20 Endemic to Haut Atlas region in Morocco (Fig. 301). Aedeagus as in Figs. 293–296. .... ***L. subglaciale*** (Koch)
– Distribution different. **21**
21 Aedeagus with apically rounded dorsal plate (Figs. 284, 285). Eyes large, distinctly more than half the length of postocular region in dorsal view. – Distribution confined to western Morocco (Fig. 281). ..... ***L. nigricolle continentale*** Jarrige
– Aedeagus with apically acute dorsal plate. **22**
22 Aedeagus highly variable (Figs. 147–149, 151–159), dorsal plate with pronounced median carina. Species of moderately large size. – Widespread, from Libya to Algeria and in Sicily (Fig. 174). ..... ***L. densiventre*** (Fauvel)
– Aedeagus different. **23**
23 Endemic to Monte Gargano (Italy: Puglia) (Fig. 174). Aedeagus as in Figs. 177, 178. .... ***L. pominii*** (Gridelli)
– Absent from Italy. **24**
24 Moderately large species. Aedeagus highly variable (Figs. 250–254, 258–275), dorsal plate with pair of carinae. – Widespread in North Africa, from Morocco to Libya (Fig. 281). .... ***L. artum*** (Karsch)
– Slightly or distinctly larger species. Aedeagus of different morphology. **25**
25 Endemic to northeastern Morocco (Fig. 301). Aedeagus as in Figs. 266–289; ventral process not very distinctive. ..... ***L. gridellii*** (Koch)
– Species confined to Algeria. **26**
26 Moderately large species (HL ≤ 1.03 mm; HW ≤ 0.95 mm; PW ≤ 1.03 mm; PL ≤ 1.22 mm). Aedeagus highly distinctive (Figs. 303, 304). – Known only from the surroundings of Médéa (Fig. 301). ..... ***L. pseudosiculum*** Jarrige

– Large species (HL ≥ 1.15 mm; HW ≥ 1.03 mm; PW ≥ 1.07 mm; PL ≥ 1.24 mm). Aedeagus of completely different morphology. **27**

27 Endemic to the Grande Kabylie (Fig. 301). Aedeagus as in Figs. 308–313. ..... ***L. fagniezi*** Jarrige

– Known only from the area to the south of Blida (Fig. 301). Aedeagus as in Figs. 320, 321. ..... ***L. mouzaiense*** Coiffait

28 Species confined to Libya (Cyrenaica). **29**

– Species confined to Morocco. **30**

29 Large species (holotype: HL: 1.38 mm; HW: 1.34 mm; PW: 1.36 mm; PL: 1.52 mm). Aedeagus as in Figs. 413, 414. ..... ***L. festae*** (Gridelli)

– Smaller species (holotype: HL: 1.01 mm; HW: 0.91 mm; PW: 0.95 mm; PL: 1.11 mm). Aedeagus as in Figs. 417, 418. ..... ***L. silvestrii*** (Gridelli)

30 Puncturation more pronounced and on average denser, eyes smaller. Aedeagus with more slender dorsal plate and with a less transverse and less distinctly asymmetric ventral process (Figs. 405–408). – Northwestern Morocco (Fig. 402). ... ***L. punctigerum*** (Fauvel)

– Puncturation finer and on average sparser; eyes larger. Aedeagus with broader dorsal plate and with distinctly transverse and asymmetric ventral process (Figs. 392, 393, 395–401). – Western and southwestern Morocco (Fig. 402). ..... ***L. brevicolle*** (Fauvel)

31 Species from Crete (Greece). **32**

– Species absent from Crete. **33**

32 Larger species (HL ≥ 1.01 mm; HW ≥ 0.91 mm; PW ≥ 0.92 mm; PL ≥ 1.07 mm); elytra relatively longer (EL/PL: 0.65–0.75). Coloration very variable; head and pronotum blackish or reddish. Aedeagus as in Figs. 78–83. – Widespread in Crete (Fig. 92). ..... ***L. creticum*** Coiffait

– Smaller species (HL ≤ 0.93 mm; HW ≤ 0.84 mm; PW ≤ 0.84 mm; PL ≤ 0.99 mm; EL ≤ 0.64 mm); elytra relatively shorter (EL/PL: 0.63–0.65). Head and pronotum reddish. Aedeagus as in Fig. 87. – Eastern Crete (Thripti) (Fig. 92). ..... ***L. thryptisense*** **n. sp.**

33 Species from the south and west of the Arabian peninsula. **34**

– Distribution different. **35**

34 Of slightly lighter coloration; pronotum brown to dark brown. Body on average larger and broader. ♂: sternite VII strongly transverse (Fig. 360), sternite VIII less distinctly oblong (Fig. 361). Aedeagus as in Fig. 359. – Western Saudi Arabia, northern Yemen. ..... ***L. arabicum*** Coiffait

– Darker; pronotum blackish. Body on average slightly smaller. ♂: sternite VII less strongly transverse (Fig. 365), sternite VIII more oblong (Fig. 366). Aedeagus as in Figs. 363, 364. – Yemen. ..... ***L. yemenicum*** **n. sp.**

35 Species of the *illyricum* coloration pattern, i. e. head, pronotum, and abdominal segments III–VII blackish, elytra and abdominal apex more or less reddish. **36**

– At least the pronotum of lighter coloration, dark brown at most. **47**

36 Large, often widespread species: HL, HW, and PW usually distinctly more (very rarely less) than 1.0 mm. **37**

– Smaller species: HL, HW, and PW usually less than 1.0 mm; distributions usually more restricted. **40**

37 Dorsal plate of aedeagus mostly relatively long and with almost straight lateral margins, with distinct median carina dorsally (Figs. 104–112). – Widespread from Slovenia to southern Turkey (Figs. 116, 117). ..... ***L. illyricum*** (Erichson)

– Aedeagus of different morphology; dorsal plate either without dorsal carina, or with pair of carinae. – Absent from Balkans. **38**

38 Distribution confined to Antalya province, southern Turkey (Fig. 126). Aedeagus as in Figs. 120, 121. ..... ***L. wunderlei*** Bordoni

– Distribution different. **39**

39 Widespread in the Eastern Mediterranean, from southern Turkey to Israel and in Cyprus (Fig. 141). Legs shorter. Aedeagus as in Figs. 129–137. ..... ***L. syriacum*** (Saulcy)

– Endemic to Cyprus, apparently very rare. Aedeagus as in Figs. 123, 124. ..... ***L. longitibiale*** Assing & Wunderle

40 Distribution confined to southern Greece (Fig. 75). Aedeagus as in Figs. 94–96. ..... ***L. graecum*** Gusarov

– Absent from Greece. **41**

41 Species from Ukraine, Caucasus, and northern Turkey. **42**
– Species from southern Turkey and the Middle East. **44**
42 Species from the western Caucasus region. Aedeagus as in Fig. 225. . ***L. sparsum*** (Reitter)
– Distribution different. **43**
43 Species known only from Sinop, central northern Anatolia (Fig. 231). Aedeagus as in Figs. 233, 234. ..... ***L. ponticum*** **n. sp.**
– Species known from northwestern Turkey and Crimea (Ukraine) (Fig. 231). Aedeagus as in Figs. 227, 228. ..... ***L. tauricum*** Gusarov
44 Aedeagus with weakly asymmetric ventral process (Figs. 209, 210, 218). **45**
– Aedeagus with distinctly asymmetric ventral process (Figs. 222, 239). **46**
45 Aedeagus with apically acute ventral process; dorsal plate with one ventral carina (Figs. 217, 218). – Syria (Fig. 215). ..... ***L. korgei*** **n. sp.**
– Aedeagus with apically less acute, often rounded ventral process; dorsal plate with one median carina (Figs. 204, 205, 208–210). – Southern Turkey, from Antalya to Gaziantep and Antakya (Fig. 215). ..... ***L. assingi*** Bordoni
46 Slightly larger species. Aedeagus as in Fig. 222. – Known only from the Kızıl Dağı (Turkey: Antakya) (Fig. 215). ..... ***L. schuelkei*** **n. sp.**
– Smaller species. Aedeagus with ventral process of highly distinctive shape (Figs. 238, 239, 243). – Known only from central southern Turkey and northwestern Syria (Fig. 244). ..... ***L. bicarinatum*** **n. sp.**
47 Species of the *melanocephalum* coloration pattern, i. e. head usually blackish brown to blackish, pronotum distinctly lighter, more or less reddish. **48**
– Head and pronotum more or less uniformly yellowish brown to brown. Aedeagus as in Figs. 368–372. – Confirmed records only from Lebanon, Israel, and Egypt (Sinai) (Fig. 375). ..... ***L. venustum*** (Baudi)
48 Species from southern Greece (Fig. 75). Aedeagus as in Figs. 71, 72. ..... ***L. melanocephalum*** (Reiche & Saulcy)
– Absent from Greece. **49**
49 Species from southern Turkey. **50**
– Species from Middle East (Lebanon, Syria, Israel). **52**
50 Distinctly larger species (HL ≥ 1.22 mm; HW ≥ 1.15 mm; PW ≥ 1.17 mm; PL ≥ 1.38 mm). Aedeagus as in Figs. 324, 325. – Endemic to southwestern Turkey (Muğla, Antalya) (Fig. 328). ..... ***L. carinatum*** **n. sp.**
– Much smaller species (HL ≤ 0.91 mm; HW ≤ 0.88 mm; PW ≤ 0.90 mm; PL ≤ 0.99 mm). **51**
51 Species from southwestern Turkey (western Antalya) (Fig. 338). Dorsal plate of aedeagus with a ventral carina, ventral process apically pointed (Figs. 330–335). . . ***L. mutabile*** **n. sp.**
– Species from central southern Turkey (Gaziantep) (Fig. 338). Dorsal plate of aedeagus with pair of dorsal carinae, ventral process apically rounded (Figs. 340–341).. ***L. geminum*** **n. sp.**
52 Larger species (HL ≥ 0.91 mm; HW ≥ 0.96 mm; PW ≥ 1.01 mm; PL ≥ 1.07 mm). Punctuation of forebody very sparse. Antennomere III at least 1.5 times as long as II. Head usually weakly transverse; pronotum weakly oblong and with convex lateral margins (dorsal view). Aedeagus as in Figs. 351–355. – Lebanon and Israel (Fig. 375). . ***L. obesum*** (Fauvel)
– Smaller species. Punctuation denser. Antennomere III shorter. Head usually oblong; pronotum more oblong and with almost straight lateral margins. Aedeagus completely different. – Known distribution confined to Anti-Lebanon. 53
53 Punctuation of forebody sparser. Eyes larger, much more than half the length of postgenae in dorsal view. Aedeagus distinctive (Figs. 377–378). Anti-Lebanon. ..... ***L. semirufum*** (Fauvel)
– Punctuation of forebody denser. Eyes smaller, less than half the length of postgenae in dorsal view. Aedeagus distinctive (Figs. 345, 346). Anti-Lebanon (Fig. 375). ..... ***L. drusiacum*** Coiffait
54 Larger species (HL ≥ 0.99 mm; HW ≥ 0.97 mm; PW ≥ 0.93 mm; PL ≥ 1.03 mm). – Species from Tajikistan. **55**
– Smaller species. **56**
55 Apex of segment VII more narrowly (about $^1/_5$ of length of segment) rufous. Aedeagus with wider dorsal plate of distinctive shape, apical part of ventral carina more projecting in lateral view and shorter (Figs. 456, 457). – Hissar range (Fig. 463). . ***L. khnzoriani*** Coiffait
– About $^1/_3$ of length of segment VII rufous. Aedeagus as in Figs. 452, 453. – Babatag (Fig. 463). ..... ***L. babatagense*** Boháč

56 Aedeagus distinctive; dorsal plate short, broad, without carinae, and symmetric, ventral process almost symmetric (Figs. 446, 447). Small species. – Tajikistan (Fig. 463). .... ***L. hauseri*** (Bernhauer)
– Aedeagus completely different; dorsal plate longer and often with carinae. **57**
57 Dorsal plate of aedeagus long and slender, apically acute, and with almost straight lateral margins, without pronounced carinae (Figs. 422, 428). **58**
– Dorsal plate of aedeagus apically broader, and with curved lateral margins, mostly with pronounced carinae (Figs. 433, 438). **59**
58 Ventral process of aedeagus strongly asymmetric (Figs. 422, 423). – Tajikistan (Fig. 462). ... . ***L. unciferum*** Coiffait
– Ventral process of aedeagus almost symmetric (Figs. 427, 428). – Tajikistan, Uzbekistan (Fig. 462). ..... ***L. zeravshanicum*** Boháč
59 Dorsal plate of aedeagus with weak ventral carina, aedeagus of distinctive shape (Figs. 437, 438). – Kazakhstan, Uzbekistan. ..... ***L. pullum*** (Solsky)
– Aedeagus of different shape, dorsal plate with pronounced carinae. – Uzbekistan. **60**
60 Ventral process of aedeagus strongly asymmetric and in lateral view broad; dorsal plate with pronounced carinae of characteristic shape (Figs. 432, 433). ..... ***L. subarisi*** Coiffait
– Ventral process of aedeagus weakly asymmetric and in lateral view slender; dorsal plate highly distinctive (Figs. 442, 443). ..... ***L. eppelsheimi*** Coiffait

7 Species transferred to other genera

Philonthus dimidiatipennis Erichson, 1840

Leptobium minusculum; Coiffait (1981a: 18), **n. syn.**

Type examined

L. minusculum: Holotype ♀: Afghanistan, Pul-e Charkhi, 22 km ENE Kabul, 1780 m, 2.6.1974, No. 144, leg. L. Papp / Holotypus 1980 *Leptobium minusculum* H. Coiffait / Type / *Leptobium minusculum* H. Coiffait 1980 / *Philonthus dimidiatipennis* Erichson det. V. Assing 2003 (HNHM).

Comment

An examination of the holotype of *Leptobium minusculum* revealed that it is conspecific with *Philonthus dimidiatipennis* Erichson of the Staphylininae; hence the synonymy indicated above.

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